Welcome

Thank you for choosing your Motorola TDMA digital StarTAC™ phone from a global leader in communications technology. All Motorola digital cellular phones are designed and manufactured to meet Motorola's rigorous specifications and world-class quality standards. During development, our laboratory testing team took your TDMA digital StarTAC™cellular phone through rigorous durability tests including temperature, humidity, shock, dust, vibration, and drop tests—and the phone still worked!

We are confident that the phone you purchased will meet your own exacting standards. Enjoy your Motorola TDMA digital StarTAC™ phone.

Contents

Welcome i

Safety Information v

Overview 10
- Package Content Options 10
- Phone Overview 11
- Understanding the Guide 12

Using the Battery 13
- About Your Batteries 13
- Removing and Attaching Battery Covers 15
- Installing and Removing Batteries 17
- Checking Battery Levels 18
- Charging Batteries 19

Using the Phone 23
- Turning the Phone On and Off 23
- Reading the Indicators 24
- Standby Mode 26
- Storing Your Phone in Its Holster 26
- Placing a Call 27
- Ending a Call 28
- Receiving a Call 28
- Using the Smart Button 29
- Redialing a Number 29
- Controlling Volume 30

Using Phone Memory 32
- Using Your Phone's Built-in Phone Book 33
- Storing Names and Numbers 33
- Recalling an Entry by Name 35
- Recalling an Entry by Memory Location 36
- Clearing a Phone Memory Entry 36
- Shortcuts for Recalling Phone Book Entries . . 37
- Making Notes on the Scratchpad 38

Using the Menu System 39
- Introducing the Menu Features 39
- Navigating the Menu 40
- Road Maps 40

Managing Recent Calls 41
Road Map for Recent Calls 42
About Recent Calls 42
Reviewing Received Call 44
Reviewing Dialed Calls 45
Clearing Caller Line ID 46
Managing the Phone Book 47
Road Map for Phone Book 48
Recalling an Entry by Name 49
Recalling an Entry by Location 49
Storing with the Menu 50
Storing and Placing Numbers with Pause Dialing 51
Storing and Placing Numbers for Calling Card Information 53
Editing a Memory Location 56
Assigning an Individual Ring Style to a Phone Book Entry 58
Timing Your Calls 60
Road Map for Call Timers 61
Viewing the Individual Call Timer 62
Viewing the Resettable Call Timer 62
Viewing the Cumulative Timer 63
Resetting the Timer 63
Displaying the Individual Timer Automatically .64
Setting the One-Minute Audible Timer 64
Setting the Repeating Audible Timer 65
Setting the Single Timer 65
Adjusting Tone Controls 67
Road Map for Tone Controls 68
Selecting Call Alert Type 69
Selecting Message Alert Type 70
Selecting a Ring Style 71
Turning Keypad Tones On and Off 71
Turning Scratchpad Tones On and Off 72
Using Lock/Security Features 73
Road Map for Lock Security 74
Activating Voice Privacy 75
Locking/Unlocking Your Phone 76
Activating Priority Calling 77

Viewing the Lock Code 78
Changing the Lock Code 78
Restricting Call Placement 79

Customizing Phone Options 83
Road Map for Phone Options 84
Activating Pager Mode 85
Viewing Your Own Number 86
Switching Between Numbers 87
Reviewing Feature Settings 88
Activating Automatic Hands-Free 89
Activating Multiple Key Answer 90
Deactivating Open to Answer 90
Activating Automatic Answer 91
Selecting Battery Options—Status Light 92
Displaying System Identification 92
Selecting Language 93

Using the Message Center 94
Road Map for Message Center 95
Voice Mail Alerts 96
Dialing Voice Mail 96
Reading Text Messages 97
Editing the Voice Mail Number 102
Setting the Scrolling Speed 103

Reference Information 104
Accessory Options 104
Troubleshooting 107

Glossary 109

Index 114

Patent Information 119

Safety Information

Important: Read this information before using your wireless handheld phone.

Exposure to Radio Frequency Signals

Your wireless handheld portable telephone is a low power radio transmitter and receiver. When it is ON, it receives and also sends out radio frequency (RF) signals.

In August 1996, The Federal Communications Commissions (FCC) adopted RF exposure guidelines with safety levels for handheld wireless phones. Those guidelines are consistent with safety standards previously set by both U.S. and international standards bodies:

- American National Standards Institute (ANSI) IEEE. C95. 1-1992
- National Council on Radiation Protection and Measurement (NCRP) Report 86
- International Commission on Non-Ionizing Radiation Protection (ICNIRP) 1996

Those standards were based on comprehensive and periodic evaluations of the relevant scientific literature. For example, over 120 scientists, engineers, and physicians from universities, government health agencies, and industry reviewed the available body of research to develop the ANSI Standard (C95.1).

The design of your phone complies with the FCC guidelines (and those standards).

Antenna Care

Use only the supplied or an approved replacement antenna. Unauthorized antennas, modifications, or attachments could damage the phone and may violate FCC regulations.

Phone Operation

Normal Operation

Hold the phone as you would any other telephone, with the antenna pointed up and over your shoulder.

Tip on Efficient Operation

To operate your phone most efficiently, do not touch the antenna unnecessarily when the phone is in use. Contact with the antenna affects call quality and may cause the phone to operate at a higher power level than otherwise needed.

Batteries

Caution: All batteries can cause property damage, injury, or burns if a conductive material, such as jewelry, keys or beaded chains, touches exposed terminals. The material may complete an electrical circuit and become quite hot. To protect against such unwanted current drain, exercise care in handling any charged battery, particularly when placing it inside your pocket, purse, or other container with metal objects. When the battery is detached from the phone, your batteries are packed with a protective battery cover; please use this cover for storing your batteries when not in use.

Driving

Check the laws and regulations on the use of wireless telephones in the areas where you drive. Always obey them. Observe the following guidelines when using your phone while driving.

- Give full attention to driving--driving safely is your first responsibility.
- Use hands-free phone operation, if available.
- Pull off the road and park before making or answering a call if driving conditions so require.

Electronic Devices

Most modern electronic equipment is shielded from RF signals. However, certain equipment may not be shielded against the RF signals from your wireless phone.

Pacemakers

The Health Industry Manufacturers Association recommends that a minimum separation of six inches (6") be maintained between a handheld wireless phone and a pacemaker to avoid potential interference with the pacemaker. These recommendations are consistent with the independent research by and recommendations of Wireless Technology Research.

Persons with pacemakers:

- should ALWAYS keep the phone more than six inches from their pacemaker when the phone is turned ON
- should not carry the phone in a breast pocket
- should use the ear opposite the pacemaker to minimize the potential for interference
- should turn the phone OFF immediately if you have any reason to suspect that interference is taking place

Hearing Aids

Some digital wireless phones may interfere with some hearing aids. In the event of such interference, you may want to consult your hearing aid manufacturer to discuss alternatives.

Other Medical Devices

If you use any other personal medical device, consult the manufacturer of your device to determine if it is adequately shielded from external RF energy. Your physician may be able to assist you in obtaining this information.

Turn your phone OFF in health care facilities when any regulations posted in these areas instruct you to do so. Hospitals or health care facilities may be using equipment that could be sensitive to external RF energy.

Vehicles

RF signals may affect improperly installed or inadequately shielded electronic systems in motor vehicles. Check with the manufacturer or its representative regarding your vehicle. You should also consult the manufacturer of any equipment that has been added to your vehicle.

Posted Facilities

Turn your phone OFF in any facility where posted notices so require.

Aircraft

FCC regulations prohibit using your phone while in the air. Switch OFF your phone before boarding an aircraft.

Blasting Areas

To avoid interfering with blasting operations, turn your phone OFF when in a “blasting area” or in areas posted: “Turn off two-way radio.” Obey all signs and instructions.

Potentially Explosive Atmospheres

Turn your phone OFF and do not remove your battery when you are in any area with a potentially explosive atmosphere. Obey all signs and instructions.

Sparks from your battery in such areas could cause an explosion or fire resulting in bodily injury or even death.

Areas with a potentially explosive atmosphere are often but not always clearly marked. They include, but are not limited to: fueling areas such as

gasoline stations; below deck on boats; fuel or chemical transfer or storage facilities; areas where fuel odors are present (for example, if a gas/propane leak occurs in a car or home); areas where the air contains chemicals or particles, such as grain, dust, or metal powders; and any other area where you normally would be advised to turn off your vehicle engine.

For Vehicles Equipped with an Air Bag

An air bag inflates with great force. Do NOT place objects, including both installed or portable wireless equipment, in the area over the air bag or in the air bag deployment area. If in-vehicle wireless equipment is improperly installed and the air bag inflates, serious injury could result.

US050498REV

Package Content Options

Your TDMA digital StarTAC™ cellular phone is typically packed with a transformer charger and at least one battery. Below is a sampling of the different package options.

Note: Your phone and accessories may not look exactly as pictured.

TDMA digital StarTAC™ Cellular Telephone

Slim Main Battery with Battery Cover

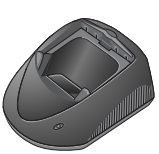
Standard Main Battery with Battery Cover

AC Adapter

Slim Auxiliary Battery with Battery Cover

Cigarette Lighter Adapter

Holster



Desktop Charger (AC Adapter required)

Headset

Phone Overview

See the inside front cover of this guide for a diagram of the components described below.

Antenna—Provides superior connectability.

Earpiece—Ultra-compact phone speaker.

Accessory Connector Port—Provides the connections for an external power supply and vehicular and optional accessories.

Headset Jack—Provides the connection for an optional headset.

Microphone—Positioned for convenient conversation.

Function Keys

Power—Turns the phone On and Off.

FCN—Acts as a "shift" key to access the secondary functions of other keys.

RCL—Recalls phone numbers from memory.

STO—Stores phone numbers into memory.

CLR—Clears characters from the screen.

END—Ends phone calls.

SEND—Places or answers calls.

* and #—Can be used to scroll through memory entries and menu features.

Message Center Button—Allows access to digital messages and voice mail messages.

Smart Button—Use the Smart Button to recall information from memory, place and end calls, select menu features, and toggle features on and off. The symbol ⌖ in your display represents the Smart Button.

Volume Keys—The upper and lower volume keys can adjust keypad, earpiece, and ringer volume. After pressing the Smart Button, the volume keys also scroll through memory entries and menu features.

Understanding the Guide

Key Presses

Key presses are represented in this guide using symbols so that you may locate and use the required sequence quickly. A sequence of key presses may be shown as follows:

FCN 0 7 CLR

This means you should press FCN followed by 0, 7, and then CLR, in sequence, not simultaneously.

Prompts and Messages

Your phone responds to key presses by displaying either a prompt that guides you to the next action or a message confirming that your action is complete. Prompts and messages are represented in this guide in LCD style, for example: `Reset Timer`.

Short Cuts and Tips

In the margins of your guide are short cuts and useful hints and ways to improve your phone's performance. These are especially helpful for experienced Motorola Users, who can find many of the same key sequences used with other Motorola models.

Using the Battery

About Your Batteries

Your TDMA digital StarTAC™ phone can use either Lithium Ion (LiIon) or Nickel Metal Hydride (NiMH) batteries. Batteries are available in these sizes: Slim, Standard, and Extra Capacity.

Your phone can use two batteries at the same time. You can use:

- any single main or auxiliary battery

  or

- a main and auxiliary battery combination

to fit your needs. You can even extend your talk-time by attaching an auxiliary battery at any time, without interrupting your call.

Battery Talk-Time and Standby-Time

Talk-time refers to the time you can talk on your phone before the battery is fully discharged. *Standby-time* is the time that your phone is on but not used for talking.

Notes:

- Talking on the phone uses more power than leaving it idle. The more power you use for talking, the less you'll have for standby-time, and vice-versa.
- All times are approximate and depend on the battery used, network configuration, signal strength, and the features selected.
- Talk and standby times are lower in analog mode.
- Your phone operates more efficiently in Digital mode. If the D icon is displayed in the lower left corner, your phone's

performance is reflected in the digital section of the table below. Otherwise, refer to the Analog section.

The following table shows ranges for battery talk-times and standby times.

<table>
<tr><th rowspan="2">Battery</th><th colspan="2">Digital</th><th colspan="2">Analog</th></tr>
<tr><th>Talk (up to)</th><th>Standby (up to)</th><th>Talk (up to)</th><th>Standby (up to)</th></tr>
<tr><td>Slim Main LiION 500mAH</td><td rowspan="2">60 min.</td><td rowspan="2">50 hrs.</td><td rowspan="2">35 min.</td><td>10 hrs.</td></tr>
<tr><td>Standard Main NiMH (500mAH</td><td>9 hrs.</td></tr>
<tr><td>Extra Capacity LiION 900 mAH</td><td rowspan="2">110 min.</td><td rowspan="2">100 hrs.</td><td rowspan="2">60 min.</td><td rowspan="2">15 hrs.</td></tr>
<tr><td>Slim Auxiliary LiION 900 mAH</td></tr>
</table>

Storing and Disposing of Batteries

To prolong the life of your batteries, do not expose them to temperatures below -10°C (14°F) or above 45°C (113°F). Always take your phone with you when you leave your car.

To dispose of batteries, check with your local recycling center for a battery recycler near you. Never dispose of batteries in a fire.

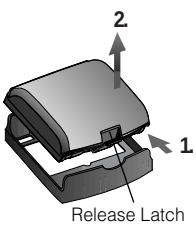
Caution: To prevent injuries or burns, do not allow metal objects to contact or short-circuit the battery terminals.

Removing and Attaching Battery Covers

Your phone's batteries are shipped uncharged and fitted with protective covers. Before you install the batteries, remove these covers, and save them for storing unused batteries. The covers prevent metal objects from contacting the battery terminals, reducing the risk of injury or damage from a battery short circuit.

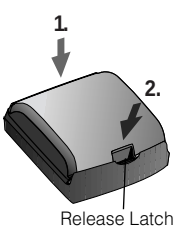
Removing the Main Battery Cover

1. Press in the release latch.
2. Rotate the battery upward and lift it out of the cover.



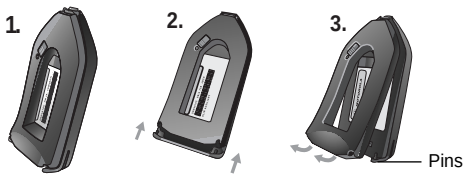
Attaching the Main Battery Cover

1. Lower the edge of the battery opposite the release latch into the cover.
2. Drop the side with the release latch down until the latch clicks into place.



Removing the Auxiliary Battery Cover

1. Hold the auxiliary battery securely with one hand.
2. With your other hand's thumb, push up on the bottom of the cover.
3. Continue pushing until the cover slides free of the pins on the bottom of the battery, and swing the cover away from the battery.



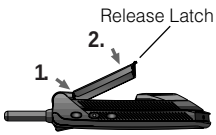
Attaching the Auxiliary Battery Cover

1. Slide the cover's narrow end into the small grooved hook on top of the auxiliary battery.
2. Push the cover firmly downward until the base of the cover slides past the battery pins; then release.

Installing and Removing Batteries

Installing a Main Battery

1. Set the edge of the battery opposite the release latch into the cover.



2. Press the release latch side of the battery into the cover until the latch clicks into place

Removing a Main Battery

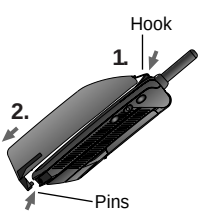
1. If you don't have another battery attached, press Power to turn your phone off.

2. Press the release latch back toward the battery, and lift the battery out.

Installing an Auxiliary Battery

The auxiliary battery clips onto the back of your phone.

1. Place the hook located on the narrow end of the battery into the slot on the back of the phone.

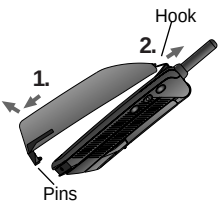


2. Pull the battery toward the bottom of the phone and slide the battery pins over the bottom of the phone.

3. Once the battery clears the bottom of the phone, release it. Make sure that the pins fit securely into place.

Removing an Auxiliary Battery

1. Pull the battery down until the pins release from the base of the phone, and pull the base away from the phone.



2. Lift the battery's hook out of the slot on the back of the phone.

Checking Battery Levels

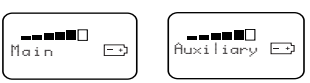
Battery Level Indicator

The three bar segments on your phone's Battery Level Indicator display the amount of charge remaining in your battery. The more segments visible, the greater the charge.

For a detailed battery level reading:

Press FCN 4.

One of the following is displayed:



The more segments filled on the battery gauge, the greater the charge.

Low Battery Warning

High

Low

When the battery level is low and only a few minutes of talk-time remain, your phone signals you in three ways:

- `Low Battery` appears in the first line of the display.
- No bar segments are highlighted.
- A short tone plays periodically.

To confirm low battery signals:

Press FCN 4.

Power Status Messages

You may also see one of the following messages:

Auxiliary	Auxiliary and/or main batteries fitted; phone is operating from auxiliary battery.
Main	Auxiliary and/or main batteries fitted; phone is operating from main battery.
Charging Auxiliary	Auxiliary and main batteries fitted; auxiliary battery is being charged.
Charging Main	Auxiliary and/or main batteries fitted; main battery is being charged.

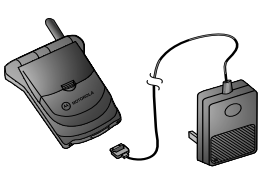
Charging Batteries

Using the Internal Charger

Your phone has a built-in battery charger. Using either the AC or cigarette lighter adapter, you can plug the handset directly into a power source to charge any attached batteries.

To charge:

1. Plug the AC adapter or cigarette lighter adapter into the accessory connector on the bottom of your phone as shown, with the release tab facing up.



Tip:
You can still place and answer calls while using either the internal charger or the cigarette lighter adapter. Remember that talking on the phone requires energy, so charging takes more time. To place the phone in charger-only mode, turn off the phone by pressing Power once.

2. Plug the power adapter into a 110V AC electrical outlet.

   or

   Plug the cigarette lighter adapter into the cigarette lighter opening in the vehicle.

   In both cases, a beep-tone sounds, and the battery icon flashes.

See “Charge Times” on page 22 for charge times.

Using the Desktop Charger

You can use the desktop charger to charge batteries while they are attached to your phone, or you can charge a main battery separately.

Tip:
If both a main and auxiliary battery are attached, the main battery is charged to 90% before the auxiliary is charged.

To charge:

1. Plug the AC adapter into the back of the charger, release tab facing up.
2. Plug the other end of the adapter into an AC wall socket.
3. With battery(ies) attached, place the phone into the charger’s pocket.

Note: When the phone is charging, the battery level indicator flashes. When the battery is fully charged, this icon stops flashing. If your phone cannot charge the battery, this indicator does not appear.

Desktop Charger Indicator Lights

The lights for charging a battery are:

Red	The battery is rapid charging.
Flashing yellow	The battery is waiting for its charge.

Green	The battery is charged within approximately 90% of its capacity and can be used. Charging the battery for an additional hour brings it up to 100% capacity.
Flashing red	Either the battery or the power supply is damaged and cannot be charged.

The light for charging a battery attached to the phone is:

Yellow	The phone is inserted and rapid charging.

Charging Two Batteries on the Phone

When you charge your phone with a main and auxiliary battery attached, the main battery is charged first.

To find out which battery is being charged:

Press FCN 4.

Note: If the battery cannot be charged and you press FCN 4, you will see `Invalid Battery`.

Tip: *"batt" is printed on the 4 key as a reminder.*

Battery Charging Tips

To ensure that you enjoy maximum battery life and use your battery to its fullest capacity:

- Always use Motorola approved battery chargers.
- For the best results, Li-Ion batteries should be charged using the E•P™ Desktop Charger, or your phone's internal charger.
- The battery should be at or near room temperature when charging.
- When you don't intend to use a battery for a while, store it uncharged in a cool, dark, dry place, such as a refrigerator.

- Do not leave a NiMH battery connected to any charger for longer than 24 hours.

A new NiMH battery may require several full charge/discharge cycles in order to achieve its optimum performance. After this initial charge, you can recharge your battery at your convenience, using the phone's rapid travel charger.

Quick Change Power Source ("Seamless Connection")

The quick change feature enables you to switch power sources while a call is in progress without losing the call. If you hear a low-battery warning while you are in a call, plug in the Cigarette Lighter Adapter or AC Adapter.

Charge Times

Locate your battery by type to see how long your battery takes to charge to a 95% power level:

Battery Type	**Charge Time (hrs)**
	Internal Charger
NiMH Main (500 mAH)	1.25
Slim LiION Main (500 mAH)	2.5
Extended LiON Main (900 mAH)	3.0
LiION Auxiliary (900 mAH)	3.0

After the battery reaches 95%, it begins to slow charge until it is fully charged. It is normal for batteries to become warm during charging.

Using the Phone

Turning the Phone On and Off

1. Open your phone to expose the keypad.
2. To turn the phone on, press and hold Power until the display appears and you hear an audible alert.
3. Press and hold Power again to turn the phone off. `Powering off` will be displayed, and you will hear an audible alert.

What You Will See

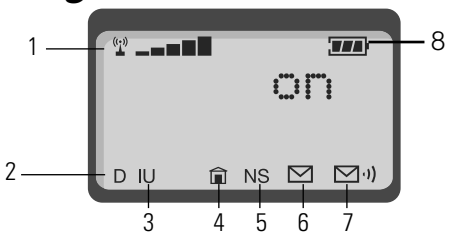
When you turn on your TDMA digital StarTAC™ phone, it performs a self-test to let you know it is operational. When the test is completed, the display shows:

- one of several possible greetings, such as:
  - the name of your Service Provider

  or

  - an indication of local or non-local coverage area
- your phone number
- the Digital or Analog icon

Reading the Indicators



Signal Strength Indicator (1)

High

Low

The Signal Strength Indicator (SSI) indicates the strength of your phone's connection with the local cellular system. A strong signal increases your chances of placing and receiving calls. Low signal strength can occur in a fringe area of the cellular system. Buildings, tunnels, and bad weather can block or interfere with reception.

D

Digital Indicator (2)

If you are in a digital coverage area, the digital indicator appears.

IU

In Use Indicator (3)

The In Use (IU) Indicator appears when a call is in progress.

In-Building Indicator (4)

The In-Building Indicator lights when the phone accesses an In-Building Cellular System or other non-public system.

NS

No Service Indicator (5)

If you travel beyond the range of a cellular system, the No Service Indicator appears to let you know that calls cannot be placed or received from your location.

SMS Message Waiting Indicator (6)

The Short Message Service (SMS) Message Waiting Indicator is displayed when the phone receives a message. (This is an optional, network

and subscription-dependent feature that is not available in all areas.)

Voice Message Waiting Indicator(7)

The Voice Message Waiting Indicator is displayed when your Voicemail has received a message. (This is an optional, network and subscription-dependent feature that is not available in all areas.)

Battery Level Indicator (8)

High

Low

The three bar segments on the Battery Level Indicator show the amount of charge remaining in your battery. The more segments you see, the greater the charge. The phone alerts you to a low charge in three ways:

- No bar segments are highlighted.
- `Low Battery` appears on your screen.
- A short tone plays periodically.

VibraCall™ Alert Indicator

When you select one of the VibraCall™ alert combinations, the following types of indicators appear in the display:

VibraCall on—Your phone's ringer is turned off and the VibraCall™ alert is on.

Vibrate then ring—Both your phone's ringer and the VibraCall™ alert are on.

Power/Status Indicator

While wearing your phone in its holster or carrying it, you can check the Power/Status indicator on top of the phone for status information on your current type of service and message status. The messages can include voice mails and Short Message Services (SMS) messages, or the receipt of recent calls. (This is an optional, network and subscription-dependent feature that is not available in all areas.)

During wake-up and while the phone is "ringing," the Power/Status Indicator flashes alternating red and green. Otherwise, if the flip is closed and the

Status Light setting in the Phone Options menu is set to On, then the Power/Status Indicator flashes according to the following chart. (See "Selecting Battery Options—Status Light" on page 92 for information on the status indicator.)

Service	Condition	First Flash	Second Flash
Service in home system	No message	Green	Green
	Message waiting		Red
Roaming (service in non-home system)	No message	Yellow	Yellow
	Message waiting		Red
No service	No message	Red	Off
	Message waiting		Red

Note: The Power/Status Indicator is Off when the phone is in charger-only mode or when the status light feature is turned off.

Standby Mode

To conserve energy, your phone may turn off its lights when in standby mode. The display comes back the next time you press a key or open the phone.

Storing Your Phone in Its Holster

To slip your phone into its holster, make sure the main battery is facing the inside of the holster. Then clip the holster onto a belt, purse or briefcase.

Notes:

- For body-worn use, keep the antenna at least one inch from your body when transmitting.

- The holster has been designed for your convenience and is not meant to secure your phone under all circumstances.

Placing a Call

To place a call:

1. First, turn the phone on. Press and hold Power until the display appears and you hear an audible alert.
2. Enter the number you want to call.
   - Press CLR to erase one digit at a time if you make a mistake.
   - Press and hold CLR to clear the entire entry.

   You can also recall a previously dialed or stored number. (See "Using Phone Memory" on page 32 for details on storing or recalling.)
3. Press and hold → until you hear a second tone.

   or

   Press SEND to place the call.

   You will hear a single-tone alert (if the keypad tones are turned on) and see Dialing.
4. You can dial phone numbers with up to 32 digits, but only the last 20 digits appear in the display.

   Press RCL to see the entire phone number.

Ending a Call

To end a call:

Press END or close the phone.

or

1. Press and hold → until you hear a second tone.

   You will see To End Call.

2. Press → again to end the call.

Receiving a Call

Your phone must be powered on to receive calls. To answer a call:

Press SEND or open the phone when the phone rings.

Note: Opening the phone does not answer the call if the Open to Answer feature is off. (See "Deactivating Open to Answer" on page 90.)

Unanswered Call Indicator

When you cannot take a call, your TDMA digital StarTAC™ phone keeps a count of your unanswered calls and alerts you with the message Missed XX Calls, where *XX* is the number of missed calls.

Press → to view missed calls.

Terminating the Ring or Vibrate Indicator

You can terminate either the ring or the vibrate indicator by pressing either of the volume keys during the ring/vibrate cycle.

Using the Smart Button

Use the Smart Button to place and end calls, enter menus, toggle features on and off, and select items in the display. The Smart Button is the middle key on the left side—easy to feel, easy to find, and easy to use.

The symbol ⁘ in your display represents the Smart Button.

Selecting Items in the Display

The most basic use of the Smart Button is for making selections. Whenever you are given a choice such as a ringer setting, press the Smart Button to select the setting you want.

Toggling Features On and Off

Some of your phone's features toggle on and off. Use the upper or lower volume key to scroll to the desired feature, then press the Smart Button to select it.

Entering the Menu System

Press FCN, then press ⁘ to access the menu. You will see Recent Calls.

Tip: *You can also enter the menu system by pressing* FCN 1.

Placing and Ending a Call

You can use the Smart Button to place and end a call, as described in "Placing a Call" on page 27 and "Ending a Call" on page 28.

Redialing a Number

Automatic Redial

A fast busy signal indicates that the cellular system is busy. With Automatic Redial, your phone calls continuously for the next four minutes.

When it makes a connection, the phone rings or vibrates. You can distinguish this ring because it is half as long as the ring or vibrate for a new incoming call. When the person you are calling answers, you can begin talking.

If you hear a fast busy signal:

1. You will see `Redial Call?`

   Press → or press SEND to redial, or press END to exit.

2. If the call does not go through after four minutes, press →, or press SEND to continue the call attempt.

   You will see `Redial`.

If you hear an ordinary busy signal:

1. Press END to hang up.
2. Press → or press SEND to redial the busy number.

   You will see `Dialing 5551234`.

Controlling Volume

Adjusting Volume

Use the upper and lower volume keys to adjust earpiece, keypad, and ringer volume. When you press these keys, the phone's speaker demonstrates the current volume level.

To adjust earpiece and keypad volume:

Press ↑ or ↓ to raise or lower the volume.

To adjust the ringer volume:

1. Press FCN.
2. Press ↑ or ↓ to raise or lower the ringer volume.

Muting the Microphone

For privacy during a call, mute the microphone. You can hear the person on the other end, but he or she cannot hear you.

1. Press FCN 6 to mute the microphone. You will see `Mute`.
2. Press FCN 6 again to resume normal conversation.

Selecting Silent Vibration Mode

In situations where you don't want your phone to ring, or in noisy places where you may not hear your phone, select the VibraCall™ Alert function for discrete vibration:

Press FCN 8 to toggle between ringer and vibration mode. You will see `Ring only` or `Vibrate only`.

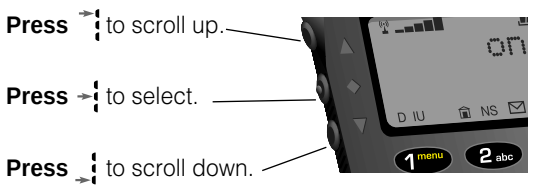
Using Phone Memory

Use your TDMA digital StarTAC™ phone's internal Phone Book to store up to 99 names and numbers for easy access.

In this chapter you will learn how to:

- store names and numbers into the Phone Book
- recall phone numbers from memory
- clear names and numbers
- dial a number with Speed Dial and Turbo Dial™
- make notes on the scratchpad

Follow these symbols as a guide for using the keys on the side of your phone:



You can also use your phone's * and # keys to scroll through the menu system.

Using Your Phone's Built-in Phone Book

Each phone number in your phone book is stored in a *memory location* numbered 01-99.

Arrange numbers for easy recall by storing related numbers in groups. If you store the numbers you call most in locations 01-09, then you can use Turbo Dial™ to call those numbers with a single key. (See "Using the Turbo Dial™ Function" on page 37 for details.)

You can also store names to identify phone numbers. Later, you can recall a number by the name that corresponds to it.

Storing Names and Numbers

How to Store Phone Numbers

1. Enter the phone number you want to store.

   Note: You can store up to 32 digits per phone number entry.

2. Press STD to begin storing.

   The phone prompts you to enter a memory location. You will see `Location --`.

3. Enter the two-digit memory location where you want the sequence stored.

   or

   Press ✱ to store the sequence in the first available location.

   or

   Enter the first digit of the memory location, then press ✱ to store the sequence in the first available location beginning with that digit.

   You will see `Alpha Or` ⁜.

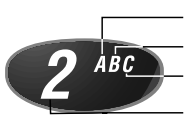
Tip: *The ⁜ symbol in your display represents the Smart Button.*

4. Enter a name to identify the phone number. (See the following section for details on entering names.)
5. Press → or STO when you finish entering the name.

   Your phone confirms your entry by displaying the information you stored.

How to Enter Letters and Numbers

When the display shows Alpha Or ⁜, you can press the numeric keys one or more times to produce any letter or number in the alphabet. Use the letters printed on each key as a guide. For example, press 2 to enter "A," "B," "C," or "2" as shown:



How to Enter a Name

Tip: *Press the upper or lower volume key first, to toggle between upper and lower case letters.*

1. Enter a letter by pressing a key as many times as necessary. Enter punctuation by pressing 1 as many times as indicated by the chart below. Pressing 1 a single time produces a single space.

2	3	4	5	6	7	8	9	10
1	/	'	,	?	$	.	&	!

   The cursor advances automatically to the next space after you enter a letter or after three seconds of inactivity. If you are repeating a character, then press # to advance the cursor to the next space.

2. Press * or CLR to erase a letter if you make an error.

3. Press → or STO when you finish entering the name.

   Your phone confirms your entry by displaying the information you stored.

Recalling an Entry by Name

After storing names and numbers, you can recall them alphabetically and immediately place calls. Use the Smart Button for instant access to the name directory.

1. Press → once to enter your name directory.
2. Press ↕ or to scroll to the name you are looking for.

   or

   Enter the first letter of the name you want to recall. The display shows the first name in the phone book that begins with that letter. If no entry beginning with that letter is found, No A's is displayed.

   When the name is displayed, the corresponding number is displayed on a third line, and the phone memory location is displayed in the upper right corner.
3. Press and hold →, or press SEND, to call the number you selected.

Recalling an Entry by Memory Location

Each name and number you store is placed in a memory location numbered 01-99. Once you have stored names and numbers, you can recall them by memory location:

1. Press RCL.
2. Enter the two-digit memory location of the phone number you want.
3. Press and hold ⇥, or press SEND to call the number you selected.

Clearing a Phone Memory Entry

Clearing an Entry by Name

1. Recall by name the entry that you want to erase. (See “Recalling an Entry by Name” on page 35.)
2. Press CLR to clear the entry.

   You will see `Clear Entry?`.
3. Press ⇥ or STO to confirm that you want to erase the entry.

   The numbered location of the cleared entry is shown in the display.

Clearing an Entry by Location Number

1. Recall by location the entry that you want to erase.
2. Press CLR to clear the display.
3. Press STO and the location you want to clear.

   You will see `XX Full Change?`
4. Press STO to confirm that you want to erase the entry.

Shortcuts for Recalling Phone Book Entries

Using Speed Dial

If you know the memory location of the number you want to call, try the Speed Dial function:

1. Enter the two-digit memory location (01-99).
2. Press and hold →¦, or press SEND to place the call.

Using the Turbo Dial™ Function

The Turbo Dial™ function enables you to dial numbers stored in locations 01-09 with the push of a single button:

> Press and hold a number 1 through 9 on the keypad**,** and your call is placed. You will hear a two-tone alert afterwards.

Your phone's Priority Call feature gives you fast access to any number stored in location 01. To learn more about this feature, see "Activating Priority Calling" on page 77.

Making Notes on the Scratchpad

In addition to your internal phone book, you also have a built-in scratchpad for making quick notes. The scratchpad remembers the last phone number shown on your display.

Entering a Number in the Scratchpad

If you are on the phone and your party gives you another number to call, enter the number on the scratchpad so you can place the call later.

1. Enter the number into the keypad. (The person on the line can hear tones as you dial.)
2. Press END to end the current call, if necessary.
3. Press SEND to call the number you saved on the Scratchpad.

Storing Numbers During a Call

You can also store numbers during a call:

1. Enter the number into the keypad. (The person on the line can hear tones as you dial.)
2. Press STO and continue storing with step 3 in “Storing Names and Numbers” on page 33.

Using the Menu System

Your TDMA digital StarTAC™ cellular phone includes many features to help you be more productive. The phone's user-friendly menu system helps you find what you need quickly and easily.

In this chapter you will learn:

- what are the main menu features
- how to navigate through the menus
- how to read a menu road map

Introducing the Menu Features

As you scroll through the menu system, you will see the following icons, each representing a high-level menu.

Recent Calls

Phone Book

Timers

Tone Control

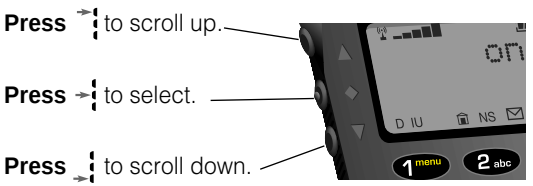
Lock Secure

Phone Options

Navigating the Menu

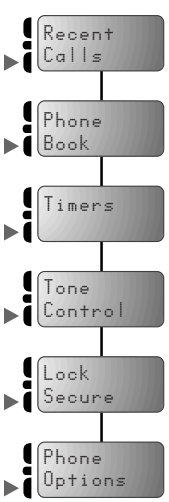
You can navigate through the menu system using the three keys located on the left side of the phone. Use the upper and lower volume keys to scroll to sub-menus and to control volume. Use the middle Smart Button to choose menus and functions.

Follow these symbols as a guide for using the keys on the side of your phone:



You can also use your phone's * and # keys to scroll through the menu system.

Road Maps



To help you navigate through the phone's menu system, each chapter begins with an easy-to-follow visual "road map." Simply press the key shown, and observe the message that appears in the display. For example, try this:

1. Press FCN, then press to enter the menu features

   or

   Press FCN 1. "menu" is printed on the 1 key as a reminder.

2. Press or to scroll through the menu's top level, shown here in the margin.

3. Press END to exit the menu.

Detailed instructions within each chapter describe how each feature works.

Managing Recent Calls ☎

The recent calls menu option allows you to access your Caller Line ID and review previous calls. Caller Line ID is an optional network and subscription-dependent feature that is not available in all areas.

In this chapter you will learn how to review all calls that you have received or dialed.

Follow these symbols as a guide for using the keys on the side of your phone:

Press ⇡ to scroll up.

Press → to select.

Press ⇣ to scroll down.

You can also use your phone's ⊛ and # keys to scroll through the menu system.

Road Map for Recent Calls

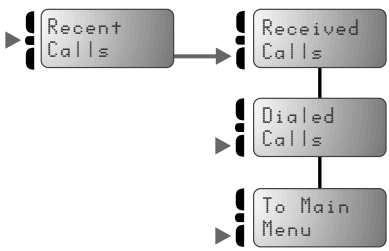
To enter the menu system:

Press FCN, then **press** →⋮.

or

Press FCN 1.

Start:



About Recent Calls

The Recent Calls menu allows you to review previous calls that you have received or dialed. Following are some useful tips and information about reviewing recent calls.

- Your TDMA digital StarTAC™ cellular phone can store the telephone numbers and names of the last thirty incoming calls.
- If the caller's phone number matches a phone number stored in the phone's memory, the phone automatically displays the name associated with that phone number.
- If you subscribe to call waiting and receive a call while another call is in progress, you hear a call waiting tone, and the caller's name and number appear on the display. The name and number are automatically stored and can be viewed after ending the call, using the procedure described in "Reviewing Received Call" on page 44.

- Caller Line ID allows you to view the name and number of the calling party in the phone's display while the phone is ringing.

  Caller Line ID is an optional feature that is not available in all markets. Contact your Service Provider for availability information.

- If the caller has restricted transmission of the phone number, your phone displays Anonymous. If the Calling Number ID information is not available to the cellular network, your phone displays Unavailabl.

- You can store any number contained in your Caller Line ID memory to a memory location in the same way you would save any phone number. Once the correct number is displayed, press STO and a memory location or STO to autoload. See "Storing with the Menu" on page 50 for more information on storing phone numbers.

- To view Caller Line ID information prior to answering a call, you must turn off the Open to Answer feature. (See "Deactivating Open to Answer" on page 90.)

Getting to Recent Calls

1. **Press** FCN, then press → to enter the menu system.
2. When you see **Recent Calls**, press → to select.
3. **Press** or → to scroll to the following features.

Shortcut: Press RCL RCL to view your received calls. You must hold the second RCL until the received call list is displayed.

Reviewing Received Call

1. Follow the steps in the "Getting to Recent Calls…" block to scroll to `Received Calls`. The total numbers of received calls stored is displayed in the upper right corner. If there are no numbers in the Caller Line ID list, you will see `00` in the upper right corner.
2. Press → to enter your Caller Line ID list of received calls.
3. Press or → to scroll through the list.

   The display shows the order in which the call was received in the upper right corner, with the phone number and name of the calling party (if available).

   The received call list can range from `01` (the most recent previous phone call) to `30` (the least recent phone call).

   The following symbols appear next to the received calls:

   Answered

   Missed

4. Press SEND to dial the displayed number.

Reviewing Dialed Calls

1. Follow the steps in the "Getting to Recent Calls…" block to scroll to Dialed Calls.

   The total number of dialed calls that are stored is displayed in the upper right corner. You can see up to the last twenty numbers dialed. If there are no numbers in the Dialed Call list, you will see 00.

2. Press → to enter your dialed calls list.

3. Press → or ↓ to scroll through the list. The dialed call list can range from 01 (the most recent dialed phone call) to 20 (the least recent dialed phone call).

   The display shows the order of the previously dialed phone call in the upper right corner, with the phone number and name (if available) of the party called.

4. Press SEND to dial the displayed number.

Shortcut:
Press RCL 0 0 to enter your dialed calls list.

Clearing Caller Line ID

Tip: *To erase **all** entries you must press and hold* CLR*, whereas to erase a **single** entry you simply press* CLR**.**

To **erase all entries** saved in your Caller Line ID memory:

1. Follow the steps in the "Getting to Recent Calls…" block to scroll to `Received Calls`.
2. Press and hold CLR when a Caller Line ID name and number is displayed. You will see `Clear All?`.
3. Press ⇢¦ or STO to clear.

   or

   Press END to leave your Caller Line ID memory intact.

To **erase a single entry** saved in your Caller Line ID memory:

1. Press CLR or any other key when a Caller Line ID name and number is displayed. You will see `Clear Entry?`.
2. Press ⇢¦ or STO to clear.

   or

   Press END to leave your Caller Line ID memory intact.

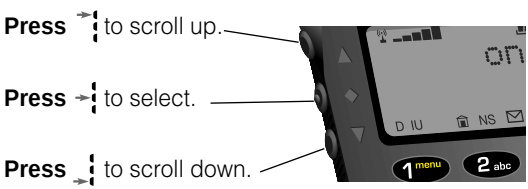
Managing the Phone Book

In “Using Phone Memory” you learned how to store and recall phone numbers with the internal Phone Book. You can access the same features, along with several advanced features, using your phone’s convenient menu system.

In this chapter you will learn how to:

- recall and store phone numbers using the menu system
- store numbers with pause dialing
- store calling card sequences for easy access
- edit your memory information
- select the individual ringer style

Follow these symbols as a guide for using the keys on the side of your phone:



You can also use your phone’s * and # keys to scroll through the menu system.

Road Map for Phone Book

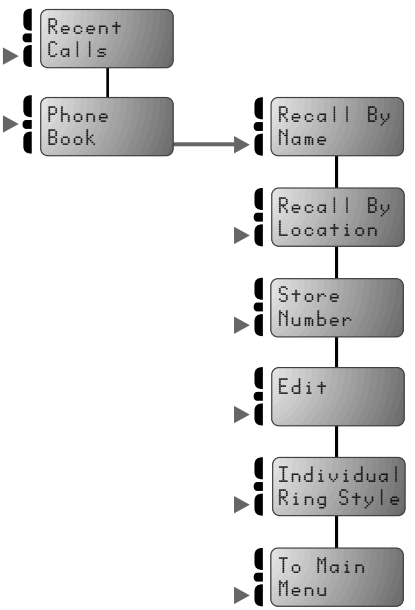
To enter the menu system:

Press FCN, then **press** →⋮.

or

Press FCN 1.

Start:



Getting to Phone Book...

1. **Press** FCN, then press → to enter the menu system.
2. **Press** ↕ to scroll to **Phone Book,** and press → to select.
3. **Press** ↕ to scroll to the following features, and press → to select.

Recalling an Entry by Name

To recall a stored name with the Phone Book menu:

1. Follow the steps in the "Getting to Phone Book..." block above to select `Recall By Name`. You will see `Enter 1st Letter`.
2. Enter the first letter of the name you want to recall. The display shows the first name in the phone book that begins with that letter. If no entry beginning with that letter is found, `No A's` is displayed.
3. Press ↕ to scroll to the name you want.
4. Press and hold →, or press SEND to call the number you selected.

Recalling an Entry by Location

Each name and number you store is placed in a memory location numbered 01-99. After storing names and numbers, you can recall them by memory location with the Phone Book menu.

1. Follow the steps in the "Getting to Phone Book..." block above to select `Recall By Location`. You will see `Location __`.
2. Enter the two-digit memory location of the number you want.
3. Press and hold →, or press SEND, to call the number you selected.

Tip: *You can also recall phone numbers without using the Phone Book. See "Recalling an Entry by Name" on page 35 or "Recalling an Entry by Memory Location" on page 36.*

Storing with the Menu

Use the phone's menu system to store names and numbers into the Phone Book.

1. Follow the steps in the "Getting to Phone Book…" block to select Store Number. You will see Enter Number.
2. Enter the phone number you want to store. See "How to Enter Letters and Numbers" on page 34.
3. Press → when you finish entering the number.

   You will see Location —.
4. Press ◄✱ to store the sequence in the next available location.

   or

   Enter the first digit of the memory location and press ◄✱ to store the sequence in the first available location beginning with that digit.

   or

   Enter the two-digit memory location where you want the sequence stored.
5. You will see Alpha Or ✱. Enter a name to identify the phone number, or skip this step and continue with step 6. (See "How to Enter a Name" on page 34 for details on entering names.)
6. Press →, or STO, when you finish entering the name. Your phone confirms your entry by displaying the location, number, and name you stored. Proceed with step 7 below, or return to step 2 above to store more numbers.
7. Press END to exit the menu.

Tip:
If the chosen location is full, press END and restart the storing sequence.

Getting to Phone Book...

1. **Press** FCN, then press → to enter the menu system.
2. **Press** ↓ or ↑ to scroll to **Phone Book**, and press → to select.
3. **Press** ↓ or ↑ to scroll to the following features, and press → to select.

Storing and Placing Numbers with Pause Dialing

Entering a Pause in a Number

When you call automated systems, a recorded message prompts you for PIN numbers, Voice Mail numbers, etc.

You can store these numbers in your phone's memory, separated by "pauses"—special characters that tell your phone to wait before sending additional numbers.

1. Follow the steps in the "Getting to Phone Book..." block above to select `Store Number`. You will see `Enter Number`.
2. Enter the phone number you use to access the automated system.
3. Press FCN, then press SEND.

   You will see `Insert Wait o`.
4. Press → to insert a pause (o) into the sequence.
5. Enter the next group of numbers (such as an account number or PIN number.)
6. Enter any other required symbols (such as * or #).

7. Insert another pause, and enter the next group of numbers by repeating steps 3 through 5 as many times as necessary.

   You can store up to 32 digits, including pauses. Then store the entire sequence as you would any phone number.

8. Press STO to begin storing.

   You will see Location —.

9. Enter the two-digit memory location where you want the sequence stored.

   You will see Alpha Or ⌖.

10. Enter a name for your sequence.

    (See "How to Enter a Name" on page 34 for details on entering names.)

11. Press ⇥ when you finish entering the name.

    Your phone confirms your entry by displaying the location, number, and name you stored.

Placing a Call with Pauses

To use your stored sequence:

1. Recall the stored number with the pause inserted.
2. Press and hold ⇥, or press SEND, to place the call.
3. When the recording prompts you for information, press ⇥ or SEND to send the next set of stored numbers.
4. Press ⇥ or press SEND as many times as necessary, to transmit all the numbers.

Getting to Phone Book...

1. **Press** FCN, then press → to enter the menu system.
2. **Press** ↓ or ↑ to scroll to **Phone Book**, and press → to select.
3. **Press** ↓ or ↑ to scroll to the following features, and press → to select

Storing and Placing Numbers for Calling Card Information

Storing Calling Card Information

Like Pause Dialing, you can store calling card access numbers, separated by pauses, for recall later. You can also store a Number Character in the sequence to save a place for the number you call when you use your calling card.

See “Using Lock/Security Features” on page 73 for more information on protecting your calling card information.

1. Follow the steps in the ”Getting to Phone Book…” block above to select `Store Number`. You will see `Enter Number`.
2. Enter the phone number you use to access your calling card system. (Skip this step if you only dial 0.)
3. Press FCN SEND. You will see `Insert Wait o`.
4. Press → to insert a pause (o) into the sequence.
5. Enter the next numbers, if needed. (For example, some long distance carriers require you to dial a 0 first. If no further numbers are needed, skip to step 7.)
6. Press FCN SEND.

7. Press → to scroll to the Number Character. You will see Insert Number ´N.

8. Press → to insert the ´N Character.

   This special character saves a place for the phone number you will be calling. The number is inserted automatically when you place the call.

9. Press FCN SEND.

10. Press → to insert another pause, as in steps 3 and 4.

11. Enter your calling card PIN number.

12. Press STO to store your calling card sequence.

    You will see Location —.

13. Enter the two-digit memory location where you want the sequence stored.

    You will see Alpha Or ⌖.

14. Enter a name for your sequence. (See "How to Enter a Name" on page 34 for details on entering names.)

15. Press → when you are finished entering the name.

    Your phone confirms your entry by displaying the location, number, and name you stored.

Placing a Calling Card Call

To recall your stored calling card information:

1. Recall the calling card information you stored.

   (See "Recalling an Entry by Name"" and "Recalling an Entry by Location" on page 49 for more information on Recalling Numbers.)

2. Press SEND before entering the number. You will see Enter Number.

3. Enter the phone number you want to call, including the area code.

   Enter the number manually, by location, or recall.

4. Press and hold →¦, or press SEND, to place the call.

   Your phone dials the number to access your long distance provider.

5. Press →¦, or press SEND, to send the next group of numbers when you are prompted.

   The phone automatically inserts the selected number to call at the appropriate time in the sequence.

6. Repeat step 5 to send the next group of numbers as many times as necessary.

Getting to Phone Book...

1. **Press** FCN, then press ⇥ to enter the menu system.
2. **Press** or ⇥ to scroll to **Phone Book**, and press ⇥ to select.
3. **Press** or ⇥ to scroll to the following features, and press ⇥ to select.

Editing a Memory Location

After you store names and numbers in the Phone Book, you can edit the information or erase entries at any time.

1. Follow the steps in the "Getting to Phone Book…" block above to select Edit.
2. Recall the entry by location or by name.

   (See "Recalling an Entry by Name" and "Recalling an Entry by Location" on page 49.)
3. Press ⇥ to begin editing the phone number.

   The display shows the name briefly, then the phone number.
4. Press CLR to erase one digit at a time.

   Press and hold CLR to erase the entire number.
5. Enter your changes to the phone number.
6. Press ⇥ when you finish editing the phone number.

   The display shows the location where your number is currently stored.
7. Press CLR to erase the memory location, then enter a new two-digit location.

   or

Press → to keep the phone number in its current location.

The display shows the name stored with the phone number you are editing.

8. Enter your changes to the name. (See "How to Enter a Name" on page 34.)

Press CLR to erase one letter at a time, or skip to step 9 to leave the name unchanged.

9. Press → when you finish editing the name. The display shows the new information.

10. Press → to save your changes.

Your phone confirms your entry by displaying the location, number, and name you stored.

or

Press CLR to leave the information unchanged.

When you see Location ——, enter a new two-digit memory location to avoid overwriting the information in the current location.

11. Press END to exit, or scroll to other features.

Getting to Phone Book...

1. **Press** FCN, then press → to enter the menu system.
2. **Press** or → to scroll to **Phone Book**, and press → to select.
3. **Press** or → to scroll to the following features, and press → to select.

Assigning an Individual Ring Style to a Phone Book Entry

You can use the individual ring style feature to assign one of nine ring styles to alert you of an incoming call from a phone number listed in your phone book.

Note: This feature will only operate if you subscribe to Caller ID from your service provider. Caller ID is not available in all areas.

1. Follow the steps in the "Getting to Phone Book..." block to select `Individual Ring Style`.
2. Select the phone book entry to which you want to assign an individual ring style.
   a. Enter the first letter of the name entry associated with the phone number.
   b. Scroll up and down to reach the desired phone book entry.
3. When you reach the phone number you want, select it by pressing → or STO.

   The display will show `Press 0-9, 0=OFF`.
4. Press 0 to assign the default ring style for the number.

   or

   Press an entry from 1 to 9 to select one of the nine ring styles.

5. Press → or STO to select that ring style.

   The display confirms the selection by showing Ring Style Assigned.

6. Press END to exit, or scroll to other features.

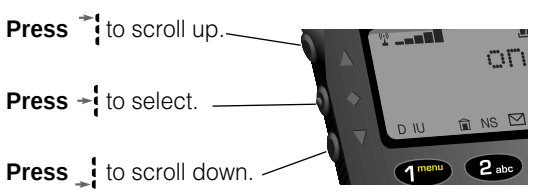
Timing Your Calls

Your phone's Call Timers give you a variety of options for managing your time. You can monitor the length of individual calls, set a timer to track monthly usage, or have the phone alert you at intervals that you specify.

In this chapter you will learn how to:

- view the timers
- monitor the length of your calls
- set and view the resettable timer for long-term monitoring
- program audible timers for your individual needs

Follow these symbols as a guide for using the keys on the side of your phone:



You can also use your phone's * and # keys to scroll through the menu system.

Road Map for Call Timers

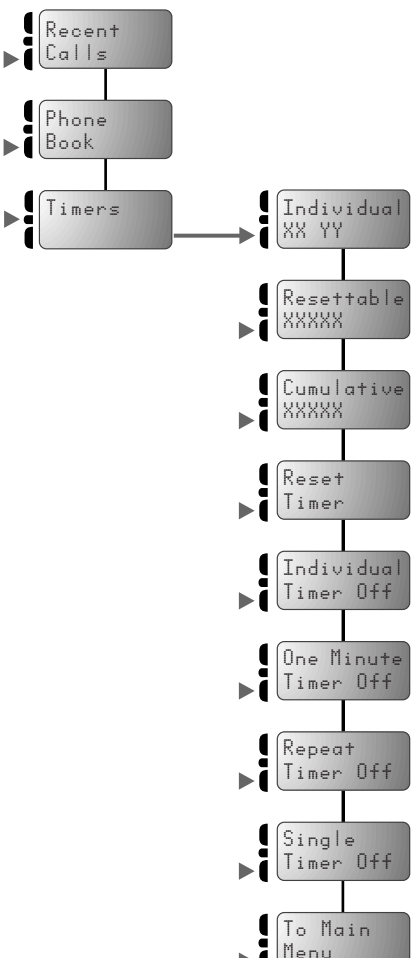
To enter the menu system:

Press FCN, then **press** →¦.

or

Press FCN 1.

Start:



Getting to Call Timers...

1. **Press** FCN, then press → to enter the menu system.
2. **Press** ↓ or → to scroll to **Timers** and press → to select.
3. **Press** ↓ or → to scroll to the following features, and press → to select.

Viewing the Individual Call Timer

Shortcut: Press RCL #▸ #▸ for a quick look at this timer.

You can view the air-time of the most recent call or the call in progress (in minutes and seconds) at any time using this feature. The Individual Call Timer resets when you place the next call and when you turn the phone off. You can also choose to have the timer display while calls are in progress. See "Displaying the Individual Timer Automatically" on page 64.

1. Follow the steps in the "Getting to Call Timers..." block above to select `Individual XX YY`. The display shows the air-time of your last call in minutes (*XX*) and seconds (*YY*).
2. Press END to exit, or scroll to other features.

Viewing the Resettable Call Timer

Shortcut: Press RCL #▸ #▸ #▸ for a quick look at this timer.

You can track how much air time you have accumulated at any time. Use this feature to view the time elapsed, and follow the instructions in "Resetting the Timer" on page 63 to reset the timer.

1. Follow the steps in the "Getting to Call Timers..." block above to select `Resettable XXXXX`. The display shows your air time in minutes since you last reset the timer.
2. Press END to exit, or scroll to other features.

Viewing the Cumulative Timer

This is a non-resettable timer that keeps track of your phone's total air time (in minutes).

1. Follow the steps in the "Getting to Call Timers…" block to select `Cumulative XXXXX`. The display shows your air time in minutes since your phone was activated.
2. Press END to exit, or scroll to other features.

Resetting the Timer

By resetting this timer at the beginning of each billing cycle, you can keep a running tab of your monthly usage. After you reset the timer, it continues to keep track of your air time (in minutes) until you reset it again.

1. Follow the steps in the "Getting to Call Timers…" block to select `Individual XX YY`.
2. Press ↓ to scroll to `Reset Timer`.
3. Press → to reset the timer.
4. Press END to exit, or scroll to other features.

Shortcut:
Press RCL #▸ #▸ #▸ #▸
for a quick look at this timer.

Getting to Call Timers...

1. **Press** FCN, then press ⇥ to enter the menu system.
2. **Press** ⇥ or ⇤ to scroll to **Timers** and press ⇥ to select.
3. **Press** ⇥ or ⇤ to scroll to the following features, and press ⇥ to select.

Tip:
Activating the Individual Timer may reduce both standby and talk times.

Displaying the Individual Timer Automatically

When you turn this feature on, your phone automatically displays your air time in minutes (*XX*) and seconds (*YY*) during and after each call.

1. Follow the steps in the "Getting to Call Timers..." block to select `Individual Timer`. You will see `Individual Timer Off` or `Individual Timer On`.
2. Press ⇥ to toggle between `Individual Timer Off` and `Individual Timer On`.
3. Press END to exit, or scroll to other features.

Setting the One-Minute Audible Timer

Activate this feature to hear an audible beep 10 seconds before the end of every minute during a call. The party on the other end does not hear the beeps.

1. Follow the steps in the "Getting to Call Timers..." block to select `One Minute Timer`. You will see `One Minute Timer Off` or `One Minute Timer On`.
2. Press ⇥ to toggle between `One Minute Timer Off` and `One Minute Timer On`.
3. Press END to exit, or scroll to other features.

Setting the Repeating Audible Timer

You can set this timer to beep during your calls at an interval that you select—from 11-999 seconds. You will hear the beep 10 seconds before the end of each interval, but the party on the other end does not hear the beeps.

1. Follow the steps in the "Getting to Call Timers…" block to select `Repeat Timer`. You will see `Repeat Timer Off` or `Repeat Timer On`.
2. Press → to toggle between `Repeat Timer Off` and `Repeat Timer On`.

   The prompt to enter seconds appears **only** if you have turned the feature on. If you have turned it off, you will see `Repeat Timer Off`.
3. Enter the number of seconds you would like between audible beeps. You will see `Beep At YYY Secs`.
4. Press → to set the timer. The phone confirms the setting by displaying `Set At YYY Secs`.
5. Press END to exit, or scroll to other features.

Setting the Single Timer

Like the Repeating Timer, you can set the Single Timer to beep at a time that you select—from 11-999 seconds. It beeps once during each call, 10 seconds before the end of the interval. The party on the other end does not hear the beep.

1. Follow the steps in the "Getting to Call Timers…" block to select `Single Timer`. You will see `Single Timer Off` or `Single Timer On`.

2. Press → to toggle between Single Timer Off and Single Timer On.

   The prompt to enter seconds appears **only** if you have turned the feature on. If you have turned it on, you will see Single Timer Off.

3. Enter the number of seconds you would like between audible beeps. You will see Beep At YYY Secs.

4. Press → to set the timer. The phone confirms the setting by displaying Set At YYY Secs.

5. Press END to exit, or scroll to other features.

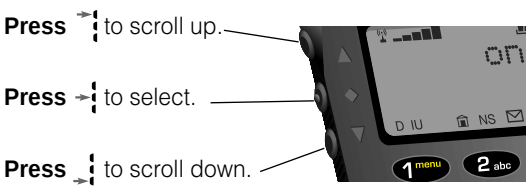
Adjusting Tone Controls

Use these features to select vibration mode, personalize your phone's ringer styles, or turn the ringer off.

In this chapter you will learn how to:

- select the type of Call Alert or Message Alert
- choose from nine different ringer styles
- silence the keypad
- silence the scratchpad

Follow these symbols as a guide for using the keys on the side of your phone:



You can also use your phone's * and # keys to scroll through the menu system.

Road Map for Tone Controls

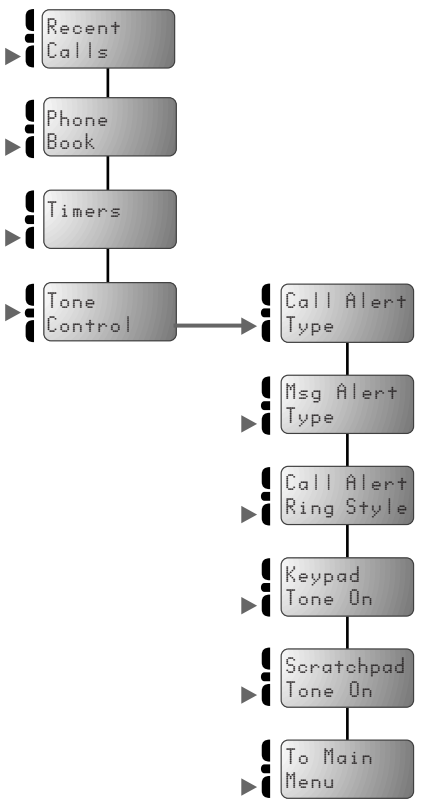
To enter the menu system:

Press FCN, then **press** ⇢⋮.

or

Press FCN 1.

Start:



Getting to Tone Controls...

1. **Press** FCN, then press → to enter the menu system.
2. **Press** ↓ or ↑ to scroll to **Tone Control** and press → to select.
3. **Press** ↓ or ↑ to scroll to the following features, and press → to select.

Selecting Call Alert Type

Using this feature, you can choose to be alerted to incoming calls using the vibrating ringer, the ringer, both, or neither. `Ring Only` is the default.

In particular, the VibraCall™ Alert vibrating alert is ideal for situations where ringing may not be appropriate, or in noisy places where you might not hear the ringer.

When both the ringer and vibrating alerts are selected, the phone alerts you by vibrating for three cycles and then ringing.

Notes:

- Although you set your call alert type below, the selection is temporarily suppressed if Pager Mode is enabled. See “Activating Pager Mode” on page 85 for details.
- When your phone is connected to an external power supply and you receive an incoming call, your phone will ring, regardless of the call alert setting.

1. Follow the steps in the ”Getting to Tone Controls…” block above to select `Call Alert Type`.The display shows your current alert type setting.

Shortcut: Press FCN 8 to toggle the VibraCall™ Alert function on and off.

2. Press OR to scroll through your choices:

Ring Only	
Vibrate Only	
Ringer On and Vib On	
Ringer Off Vib Off	

3. Press → when you reach the setting you want.
4. Press END to exit, or scroll to other features.

Selecting Message Alert Type

Shortcut: Press FCN 8 to toggle among the Message Alert and Call Alert types.

Using this feature, you can choose to receive an alert to incoming voice mails and short messages using the VibraCall™ alert, beeping alert, or no alert.

The beep tone and vibrating patterns differ if the incoming message is marked urgent versus normal. You will receive one beep for a normal message and three beeps for an urgent message.

1. Follow the steps in the "Getting to Tone Controls…" block to select Message Alert Type.
2. Press OR to scroll through your choices: Messages Beep, Messages Vibrate, Beep Off, and Vib Off. Messages Beep is the default setting.
3. Press → when you reach the setting you want.
4. Press END to exit, or scroll to other features.

Getting to Tone Controls...

1. **Press** FCN, then press → to enter the menu system.
2. **Press** ↑ or ↓ to scroll to **Tone Control** and press → to select.
3. **Press** ↑ or ↓ to scroll to the following features, and press → to select

Selecting a Ring Style

Your phone lets you select any of nine different ring styles. After you choose a style, the phone give you a brief sample of the new ring style, or vibrates if you have selected the VibraCall™ Alert feature.

1. Follow the steps in the "Getting to Tone Controls..." block to select `Call Alert Ring Style`.
2. Press 1 through 9 to hear the different ring styles, or scroll through the ring styles. `Ring Style 1` is the default setting.
3. Press → when you reach the ring style you want.

   The display will show `Ring Style X Set`.
4. Press END to exit, or scroll to other features.

Turning Keypad Tones On and Off

Keypad tones are the sounds you hear when you press any key on the phone. By default, keypad tones are turned on. If you want to be discreet, use this feature to silence the audio feedback from the keypad.

Note: The other party still hears tones.

1. Follow the steps in the "Getting to Tone Controls..." block to select `Keypad Tone`. You will see `Keypad Tone On` or `Keypad Tone Off`.

2. Press ⇢ to toggle between Keypad Tone On and Keypad Tone Off.
3. Press END to exit, or scroll to other features.

Turning Scratchpad Tones On and Off

Scratchpad tones are the tones that your phone sends to access automated calling systems like Voice Mail. By default, scratchpad tones are turned on. If you don't want your party to hear these sounds when you use the scratchpad, turn the scratchpad tones off.

1. Follow the steps in the "Getting to Tone Controls…" block to select Scratchpad Tone. You will see Scratchpad Tone On or Scratchpad Tone Off.
2. Press ⇢ to toggle between Scratchpad Tone On and Scratchpad Tone Off.
3. Press END to exit, or scroll to other features.

Note: If you turned the scratchpad tones off but want to access a tone-activated system like Voice Mail, place the call, enter the numbers you need to transmit, then:

Press RCL SEND to send the tones.

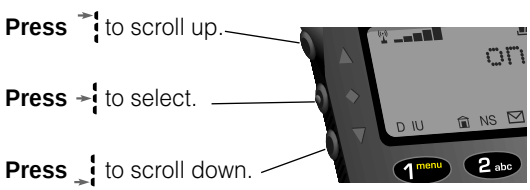
Using Lock/Security Features

While you probably would not want to leave your phone unattended, your TDMA digital StarTAC™ phone has a number of built-in security features to prevent unauthorized use.

In this chapter you will learn how to:

- activate the Voice Privacy feature
- lock and unlock your phone
- place priority calls
- change your lock code
- restrict call placement and memory access
- reset or clear your phone's settings

Follow these symbols as a guide for using the keys on the side of your phone:



You can also use your phone's * and # keys to scroll through the menu system.

Road Map for Lock Security

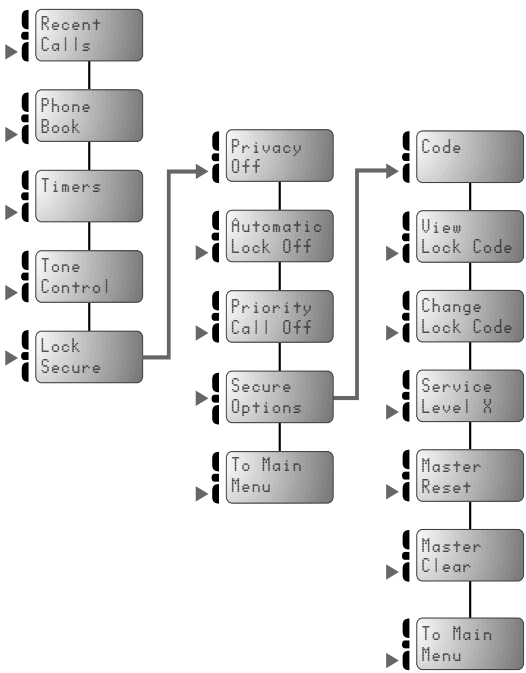
To enter the menu system:

Press FCN, then **press** →⋮.

or

Press FCN 1.

Start:



Getting to Lock Security...

1. **Press** FCN, then press → to enter the menu system.
2. **Press** ↑ or ↓ to scroll to **Lock Secure** and press → to select.
3. **Press** ↑ or ↓ to scroll to the following features, and press → to select.

Activating Voice Privacy

When you activate your phone's Voice Privacy feature, you request your cellular system to search for a Voice Privacy channel with each call. If no Voice Privacy channel is available (or your call is "handed off" to a cell where a Voice Privacy channel is not available), five short beeps alert you that the call is no longer private.

You must select the Voice Privacy feature before you make a call in order for that call to search for a Voice Privacy channel.

Note: This feature is not available in all markets. Contact your Service Provider for additional information about your service area.

To turn the Voice Privacy feature on or off:

1. Follow the steps in the "Getting to Lock/Security…" block above to select Voice Privacy. You will see `Privacy Off` or `Privacy Preferred`.
2. Press → to toggle between `Privacy Off` and `Privacy Preferred`.
3. Press END to exit, or scroll to other features.

Locking/Unlocking Your Phone

For your protection, you must enter the six-digit security code to access the features that your phone contains. The factory-programmed lock code for unlocking the phone is 123. The six-digit security code is 000000. These may have been changed when your phone was activated.

Locking Your Phone Automatically

When you turn this feature on, your phone automatically locks itself each time you turn it off.

Shortcut: Press FCN, the Smart Button, 1 5, and continue with step 2.

1. Follow the steps in the "Getting to Lock/Security…" block to select Automatic Lock. You will see Automatic Lock Off or Automatic Lock On.
2. Press → to toggle between Automatic Lock Off and Automatic Lock On.
3. Press END to exit, or scroll to other features.

Locking Your Phone Manually

Tip: *"LOCK" is printed on the 5 key, as a reminder.*

You can lock your phone manually at any time to prevent unwanted use. Once you lock the phone, it remains locked whether it is powered on or off.

1. Press FCN.
2. Press and hold 5 for at least one full second.You will see Lock?.
3. Press STO or → to lock. You will see Locked.

Unlocking Your Phone

To unlock your phone:

Once your phone is on, **enter your three-digit lock code** to unlock your phone. (See "Viewing the Lock Code" on page 78 and "Changing the Lock Code" on page 78 for more information on your lock code.)

Answering Calls While the Phone Is Locked

You can still receive calls when the phone is locked. To answer an incoming call:

1. Enter your three-digit lock code.
2. Press and hold →, or press SEND to receive the call.

Tip: *If you forget your lock code, try pressing 1 2 3 or the last three digits of your cellular phone number.*

Activating Priority Calling

Priority Call allows the Turbo Dial™ function to dial from memory location 01—even when the phone is locked. You can store an emergency number or the number of someone you would like to contact in case of emergency.

Note: Some cellular systems have their own emergency numbers and deny access to emergency numbers like 911 (not available in some areas). Check with your Service Provider for more information.

By default, Priority Call is activated. To turn it off or to switch it back on, complete the following steps:

1. Follow the steps in the "Getting to Lock/Security…" block on the previous page to select `Priority Call`. You will see `Priority Call Off` or `Priority Call On`.
2. Press → to toggle between `Priority Call Off` and `Priority Call On`.
3. Press END to exit, or scroll to other features.

Shortcut: Press FCN, the Smart Button, 2 9, and continue with step 2.

Getting to Secure Options...

1. **Press** FCN, then press → to enter the menu system.
2. **Press** or → to scroll to **Lock Secure** and press → to select.
3. **Press** or → to scroll to the **Secure Options** submenu, and press → to select.
4. **Enter** your **six-digit security code**, scroll to the following features, and press → to select.

Viewing the Lock Code

To display the active three-digit lock code:

1. Follow the steps in the "Getting to Secure Options..." block above to select `View Lock Code`. You will see `View Lock Code.`
2. Press → to display your three-digit lock code. The code appears for a few seconds.
3. Press END to exit, or scroll to other features.

Changing the Lock Code

To change your three-digit lock code:

1. Follow the steps in the "Getting to Secure Options..." block above to select `Change Lock Code`. You will see `Enter Code ____`.
2. Enter the new three-digit code. You will see `Changed To XXX`.
3. Press END to exit, or scroll to other features.

Note: If you try to change your lock code to 911 or the first three digits of an emergency number, you will see `Code Invalid`, and the code you entered **will not** be accepted. You will return to step 1 above.

Restricting Call Placement

You may want to restrict call placement or hide memory information when loaning your phone to others.

Selecting a Service Level

1. Follow the steps in the "Getting to Secure Options…" block to select `Service Level`. The phone displays your current service level. Refer to the chart on the next page.
2. Press or to scroll through the service level settings, and press → to select the service level you want.

   If you select Level 7, the phone prompts you for the range of memory locations you want to remain active. You will see `Range 1--`.

   Enter the range of digits memory locations from which calls are allowed. The phone confirms the allowed range, and you will see `1-XX Allowed`.
3. Press END to exit, or scroll to other features.

Service Level Settings

Each of your phone's eight service levels offers a different combination of access privileges and restriction.

Note: Caller Line ID is an optional network and subscription feature that is not available in all areas.

Level	Description	Display
1	• Calls can be placed from memory locations 1-10 only. • No dialing from keypad • No memory edit or storage • No access to name directory • No access to last number dialed	`1 Memory 1-10`

Level	Description	Display
2	• Calls can be placed from all memory locations. • No dialing from keypad • No memory edit or storage • No access to Caller Line ID stack or Last Number Dialed	2 Memory Only
3	• Calls can be placed manually from the keypad only. • No access to memory information • No memory edit or storage • No access to Caller Line ID stack or Last Number Dialed	3 Keypad Only
4	Standard setting, no restrictions	4 Standard Setting
5	Seven-digit (local) dialing only	5 Local Only
6	• Calls can be placed from the keypad and from memory. • No edit or memory storage to memory locations 1-10	6 No Store 1-10
7	• Calls can be placed from a selected memory range only. • Memory edit and storage allowed with the selected range. • No access to name directory	7 Allow Range
8	No edit, storage, or recall from memory locations 1-9	8 Hide Turbo

Getting to Secure Options...

1. **Press** FCN, then press → to enter the menu system.
2. **Press** or → to scroll to **Lock Secure** and press → to select.
3. **Press** or → to scroll to the **Secure Options** submenu, and press → to select.
4. **Enter** your **six-digit security code**, scroll to the following features, and press → to select.

Resetting All Options

Use the Master Reset feature to reset all user-selectable options back to their original factory settings.

Note: Once you select this feature, the reset process cannot be canceled or reversed.

1. Follow the steps in the "Getting to Security Options..." block above to select `Master Reset`.
2. Press → if you want to reset all your phone's options back to their factory settings. You will see `Standard Setting`.

   or

   Press END to exit the menu if you do not want to reset your phone's options.
3. Press END to exit, or scroll to other features.

Clearing All Stored Information

If you want to start over, use Master Clear to reset all user-selectable options, clear the resettable timer, and erase all Phone Book information.

Note: Once you select this feature, the process cannot be canceled or reversed.

1. Follow the steps in the "Getting to Security Options..." block to select `Master Clear`.

2. Press → to clear the memory and reset all your phone's options back to their factory settings. You will see Busy. (This takes a few seconds.)

   or

   Press END to exit the menu if you do not want to reset your phone's options.

3. Press END to exit, or scroll to other features.

Customizing Phone Options

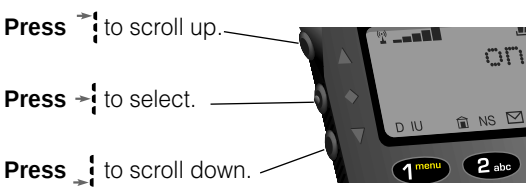
The Phone Options menu lets you customize the way your phone sends and receives calls.

You can tune your phone for optimal performance, view information about the phone, and choose from a number of convenient features.

In this chapter you will learn how to:

- activate pager mode
- switch between analog or digital mode
- view your own phone number
- switch cellular phone numbers
- review your phone's feature settings
- select features for vehicular use
- conserve battery power
- display your system identification
- select a language

Follow these symbols as a guide for using the keys on the side of your phone:



You can also use your phone's * and # keys to scroll through the menu system.

Road Map for Phone Options

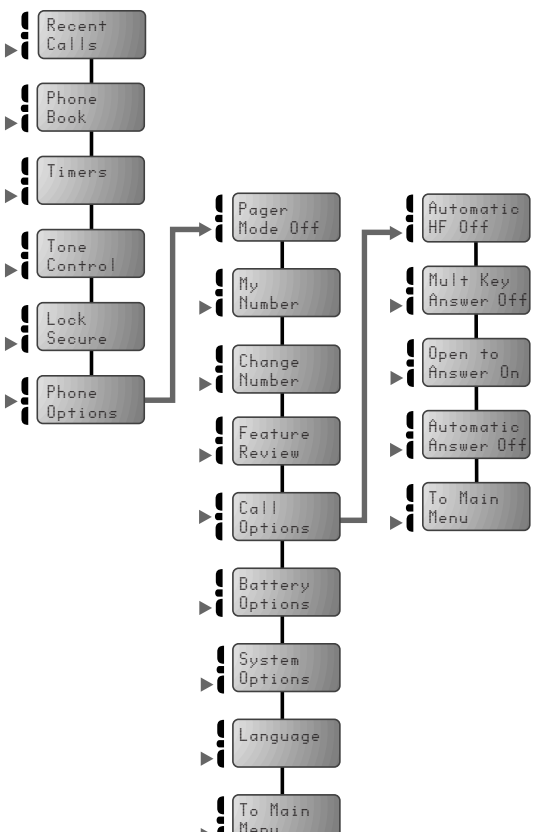
To enter the menu system:

Press FCN, then **press** →⋮.

or

Press FCN 1.

Start:



Getting to Phone Options...

1. **Press** FCN, then press → to enter the menu system.
2. **Press** ↑ or ↓ to scroll to **Phone Options** and press → to select.
3. **Press** ↑ or ↓ to scroll to the following features

Activating Pager Mode

When Pager Mode is activated, the phone simulates a pager. Pager Mode suppresses incoming call alerts but leaves message alerts active. The following conditions occur:

- Voice call alerts are suppressed.
- Message alerts are allowed.
- The Open to Answer function is turned off.
- The Automatic Answer function is turned off.
- The Call Alert Type, Open to Answer, and Automatic Answer menus cannot be accessed.

By default, Pager Mode is turned off. Complete the following steps to turn Pager Mode on and off.

1. Follow the steps in the "Getting to Phone Options..." block to select `Pager Mode on/off`. The display shows your current Pager Mode setting.
2. Press → to toggle between Pager Mode on and off.
3. Press END to exit, or scroll to other features.

Tip: *When Pager Mode is active,* FCN 8 *only toggles the Message Alert Type settings.* FCN 8 *has no effect on the Call Alert Type settings.*

Viewing Your Own Number

Use this feature to view your phone's currently active phone number. If you have more than one phone number, you can change the active number with the Change Number feature in the Phone Options menu. (See "Switching Between Numbers" on page 87.)

Shortcut:
Press RCL #▸ for a quick look at your phone number.

1. Follow the steps in the "Getting to Phone Options…" block to select My Number.
2. Press →¦ to view your own phone number.

   Your active phone number appears on the screen. After six seconds, the phone returns to step 1.
3. Press END to exit, or scroll to other features.

Getting to Phone Options...

1. **Press** FCN, then press → to enter the menu system.
2. **Press** ↓ or ↑ to scroll to **Phone Options** and press → to select.
3. **Press** ↓ or ↑ to scroll to the following features

Switching Between Numbers

Your phone can operate on two different home systems. If you travel often, you can have your phone programmed with two cellular numbers to reduce roaming. This feature allows you to change your active number to the one appropriate for the area you are in.

When your phone has two numbers, both are designated as your home system but only one number can be active at any given time. Calls are placed and received by the currently active number only. Each time you turn your phone ON, you'll see a message in the display that indicates which phone number and home system are currently active.

To switch your phone number:

1. Follow the steps in the "Getting to Phone Options..." block to select `Change Number`. The active phone number appears in the display (for example, `5155551515`).
2. Press → to switch to your other phone number (for example, `7085551212`).
3. Press → to confirm the new setting.
4. Press END to exit, or scroll to other features.

Reviewing Feature Settings

Use this feature to review the changes you've made to feature settings.

Note: While scrolling through Feature Review, you can only review settings. You cannot change them.

1. Follow the steps in the "Getting to Phone Options…" block to select `Feature Review`.
2. Press or, or press ✱ or # to scroll through features you changed from their default settings.

   If all of the features are set to the factory standard settings, the display shows `Standard Setting`.
3. Press END to exit the menu.

Getting to Call Options...

1. **Press** FCN, then press → to enter the menu system.
2. **Press** ↑ or ↓ to scroll to **Phone Options** and press → to select.
3. **Press** ↑ or ↓ to scroll to the **Call Options** submenu, and press → to select.
4. **Press** ↑ or ↓ to scroll to the following features.

Activating Automatic Hands-Free

Turn this feature on when you are using Hands-Free vehicular accessories.

Note: The use of wireless telephones and their accessories (devices) may be prohibited or restricted in certain areas. Always obey the laws and regulations on the use of these devices.

To find out more about accessories for your car, refer to “Accessory Options” on page 104.

1. Follow the steps in the ”Getting to Call Options…” block to scroll to `Automatic HF`. You will see `Automatic HF On` or `Automatic HF Off`.
2. Press → to toggle between `Automatic HF On` and `Automatic HF Off`.
3. Press END to exit, or scroll to other features.

Activating Multiple Key Answer

Turn on the Multiple Key Answer feature to answer calls by pressing the Smart Button, any key on the upper keypad 1-#, or the upper and lower volume keys.

1. Follow the steps in the "Getting to Call Options…" block to scroll to Mult Key Answer. You will see Mult Key Answer On or Mult Key Answer Off.
2. Press → to toggle between Mult Key Answer On and Mult Key Answer Off.
3. Press END to exit, or scroll to other features.

Deactivating Open to Answer

With Open to Answer set to off, you can open the phone to see the message in the display and then answer by pressing SEND or →.

Notes:

- To view Caller ID information prior to answering a call, you must turn off the Open to Answer feature.
- You cannot access the Open to Answer setting while the Pager Mode feature is active.

1. Follow the steps in the "Getting to Call Options…" block to scroll to Open to Answer. You will see Open to Answer On or Open to Answer Off.
2. Press → to toggle between Open to Answer On and Open to Answer Off.

   Note: The Open to Answer function cannot be accessed when in Pager Mode.
3. Press END to exit, or scroll to other features.

Activating Automatic Answer

Turn Auto Answer on to have your phone automatically answer incoming calls after two rings.

Note: Auto Answer does not work if the keypad cover is closed or if Pager Mode is activated. However, the Auto Answer will work with the *headset* while the keypad cover is closed.

1. Follow the steps in the "Getting to Call Options…" block to scroll to Automatic Answer. You will see Automatic Answer On or Automatic Answer Off.
2. Press ⇢ to toggle between Automatic Answer On and Automatic Answer Off.
3. Press END to exit, or scroll to other features.

Tip: *If the ringer and VibraCall™ alert are off, the phone answers without ringing or vibrating.*

Getting to Phone Options...

1. **Press** FCN, then press → to enter the menu system.
2. **Press** or → to scroll to **Phone Options** and press → to select.
3. **Press** or → to scroll to the following features.

Selecting Battery Options— Status Light

This feature enables you to turn off the Power/Status Indicator. Turn this mode on to increase talk or standby times.

1. Follow the steps in the "Getting to Phone Options..." block to select the `Battery Options` sub-menu. You will see `Status Light On` or `Status Light Off`.
2. Press → to toggle between `Status Light On` and `Status Light Off`.
3. Press END to exit, or scroll to other features.

Displaying System Identification

This feature shows the System ID number that identifies the cellular system your phone is currently accessing. An even number indicates a wireline system, while an odd number indicates a non-wireline system.

1. Follow the steps in the "Getting to Phone Options..." block to enter the `System Options` sub-menu. You will see `Display SID`.
2. Press → to view the System ID number. After six seconds, the phone goes back to step 2.
3. Press END to exit, or scroll to other features.

Selecting Language

This feature enables you to select the language in which your phone displays prompts and messages.

1. Follow the steps in the "Getting to Phone Options…" block on the previous page to select the Language sub-menu.
2. Press → to scroll through the language options. The choices include English, Spanish, French, Portuguese, Hebrew, and Russian.
3. Press → to select the language setting you want.
4. Press END to exit, or scroll to other features.

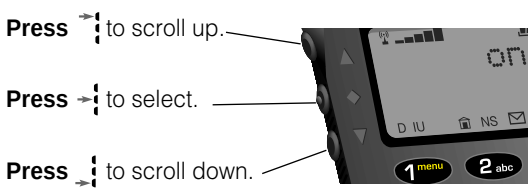
Using the Message Center

The Message Center gives you easy access to both voice mail and your text messages. In this chapter you will learn how to:

- use voice mail
- edit a phone number to access voice mail
- use short messaging services (SMS) to view, lock/unlock, and clear messages
- adjust speed of your scrolling messages

Note: Voice mail and SMS are optional network and subscription-dependent features that are not available in all areas.

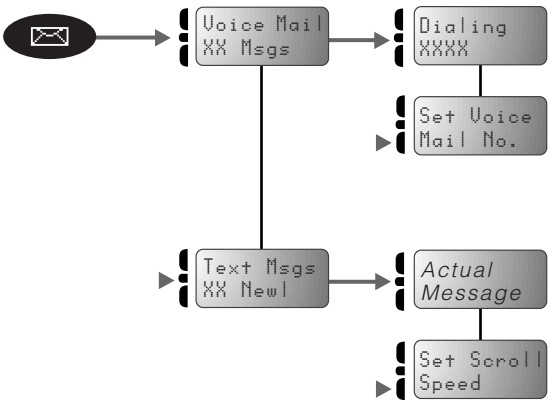
Follow these symbols as a guide for using the keys on the side of your phone:



You can also use your phone's * and # keys to scroll through the menu system.

Road Map for Message Center

Start:



Getting to Voice Mail

1. **Press** ✉ to enter the message center.
2. **Press** or to scroll to **Voice Mail.**

Voice Mail Alerts

This feature updates you each time a message is sent to your voice mail number, providing you with real-time information on messages waiting to be retrieved.

When a voice mail message is received:

- Voice Mail XX Msgs appears.
- The ✉» icon appears.
- The phone beeps three times or vibrates one time for a message.

Dialing Voice Mail

You can retrieve your voice mail messages in one of two ways.

From the Voice Mail Alert Screen

When you receive a voice mail alert and the Voice Mail XX message appears, press → to dial your voice mail number.

Your access number for the voice mail center is dialed automatically, and Dialing XXXX appears on the display, where XXXX is your access number.

From the Message Center

Follow the steps in the "Getting to Voice Mail…" block and press → or ✉ to dial your voice mail number.

Your access number for the voice mail center is dialed automatically, and Dialing XXXX appears on the display, where XXXX is your access number.

Getting to Text Messages

1. **Press** ✉ to enter the message center.
2. **Press** ↕ to scroll to **Text Msgs.**

Reading Text Messages

Some Service Providers let you subscribe to a Short Message Service (SMS), which allows you to receive alphanumeric messages on your TDMA digital StarTAC™ phone, just like a pager. Contact your Service Provider for information about the availability of messaging in your area.

SMS enables your phone to save up to 15 short messages, each up to 80 characters in length, or five full-length 239-character messages.

Your TDMA digital StarTAC™ phone automatically replaces the oldest messages with the newest as they are received. You can store Call Back messages and numbers for later review. The one-touch Message Button makes viewing your messages easy.

How Your Phone Receives Message Alerts

New Message Alerts

If your phone is on and receives a new digital message, the phone alerts you in two different ways:

- `Message Received` appears in the display, and:
  - The message icon ✉ appears.
  - The phone beeps three times or vibrates once.

  or

- Urgent Msg Received or EMERGENCY MSG RECVD appears in the display, and:
  - The message icon appears.
  - The phone beeps five times or vibrates three times.

Short Message Indicators

If the sender has marked the message "Emergency" or "Urgent," the display shows the message content on the first line and either Urgent or Emergency on the second line. The message number appears in the upper right of the display.

Selecting and Reading Short Messages

1. Follow the steps in the "Getting to Text Messages…" block.
   - If the message center has messages, you will see Text Msgs XX New, where *XX* is the number of unread messages.

     The total number of messages stored, *YY* appears in the upper right of the display.
   - If the message center has no messages, you will see Text Msgs Empty, and 00 will appear in the upper right portion of the display.
2. Press or to view the message headers.

   If the message center is full, you will see Msg Memory Full displayed for two seconds prior to viewing the message headers.
3. Now you can scroll through a list of message headers. Each header includes:

- the message number
- its urgency
- the beginning of the message text

Press or to scroll forward or backward through the list of message headers. The newest message is placed at the top of the list, and the oldest message is at the bottom.

4. Press → to select and view a message. First, the time and date stamp is displayed for two seconds, and then the message text appears, starting on the top line.

   Press ✉ to halt the display of the message text. Press ✉ again to restart it.

5. After reading a selected message, press or to scroll through the list of message headers.

6. Press END or press and hold ✉ to exit, or scroll to other features.

Initiating a Call Back

When the current message has scrolled across the display, you can call back a number embedded in the text message.

1. Press and hold →, or press SEND to initiate a Call Back, if a Call Back number was included in the message.

   You will see `Dial No.? XXXXXXX`.

   If a Call Back number was not included in the text message, the phone dials the first number present in the text message.

2. Press →, or press SEND to dial the number shown.

   or

   Press or to search the text message for the next call back number.

Note: While in the message center, you can enter a Call Back number at any time by using the keypad, and then pressing SEND to place the call.

Locking and Unlocking a Message

You can lock important messages to ensure their safekeeping for later review. A locked message cannot be deleted until the message is unlocked.

Press FCN 5, to toggle the current message between locked and unlocked.

`Msg Locked` is displayed when a message is locked.

Note: If your message memory is full and a new message is received, the oldest unlocked message that has been read is deleted.

Clearing Messages

Clearing the Current Message

1. Press CLR when the message you want to erase is on the display.

   You will see `Clear Message?`, where *XX* is the number of the message you will clear. This number will appear in the upper right portion of the display.

2. Press →¦ or STO to clear the message.

   You will see `Message Cleared`.

   or

   Press END or any other key if you do not wish to clear the message. You will see `Msg Not Cleared`.

Note: You must unlock a locked message before you can clear it. For more information, see "Locking and Unlocking a Message" above.

Clearing All Messages

To erase all the messages from your Message Center at once:

1. Press and hold CLR when you are in the message center.

   You will see `Clear All?`.

2. Press →¦ or STO to verify that you want all the messages cleared.

   or

   Press END if you decide not to clear all the messages. You are returned to the message center.

3. Press END to exit from the message center.

   If all messages have been cleared and no locked messages remain in the message center, `Msg Center Empty` appears in the display.

Note: You must unlock any locked messages before they can be cleared. For more information, see “Locking and Unlocking a Message” on page 100.

Getting to Message Center Options...

1. **Press** ✉ to enter the message center.
2. **Press** or to scroll to **Msg Center Options** and press → to select.
3. Press or to scroll to the following features.

Editing the Voice Mail Number

This feature allows you to save your voice mail access number.

Note: When you receive your phone, the default voice mail number is your phone number.

1. Follow the steps in the "Getting to Message Center Options…" block.
2. Press → to select Set Voice Mail No.
3. Enter your voice mail number.

   The digits appear as you enter them.
4. Press → or STO.

   A message confirms that your number has been saved.

   Note: If you subscribe to a system that provides a shortcut number for voice mail, enter the complete number—not the shortcut number.
5. Press END to exit, or scroll to other features.

Setting the Scrolling Speed

To adjust the scrolling speed of your incoming messages:

1. Follow the steps in the "Getting to Message Center Options…" block.
2. Press → to select the Set Scroll Speed option.
3. Press or → to scroll through scrolling speed settings:
   - To scroll slowly, select Slow Scrolling.
   - For medium scrolling, select Medium Scrolling.
   - To scroll quickly, select Fast Scrolling.
4. Press → to select a scrolling speed.
5. Press END to exit, or scroll to other features.

Reference Information

Accessory Options

An exciting line of Motorola TDMA digital StarTAC™ accessories, now smaller and lighter than ever, can enhance and personalize your cellular experience.

Batteries

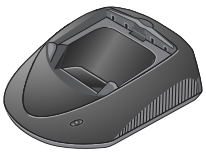
If your cellular phone is quickly becoming your companion, an optional auxiliary battery gives your phone a boost. Auxiliary batteries attach to the back of your phone and provide extra talk time in addition to your main battery. See “Battery Talk-Time and Standby-Time” on page 13 for battery talk-times and standby-times.

Note: Nickel Metal Hydride batteries should not be left in the charger for more than 24 hours.

Cigarette Lighter Adapter

With the cigarette lighter adapter, you can power your phone and charge your phone’s battery directly from your vehicle’s cigarette lighter! In some cars, the engine must be running in order for the cigarette lighter to operate.

Desktop Charger (AC Adapter required)



The desktop charger is designed for optimal performance and compatibility with Motorola's new generation of cellular telephones. The desktop charger's pocket can charge batteries while they are attached to or separate from your phone. Now it is easy to rotate batteries and always have a charged spare.

Holster

Your TDMA digital StarTAC™ phone is so small and light, it is positively wearable. Slip it in and clip it on—for the ultimate in high-tech fashion.

Notes:

- The holster is designed for your convenience and is not meant to secure your phone under all circumstances.
- For body-worn use, keep the antenna at least one inch from your body when transmitting.

Headset

The convenient headset provides both an earphone and microphone in one small piece for simple hands-free and private telephone conversations. The headset plugs directly into the jack on the top of your phone, so that you can wear your phone and move freely. Place the foam cover on the earpiece for a more comfortable fit.

Hands-Free Vehicle Kit

The optional Hands-Free Kit gives you the convenience of hands-free, speaker phone operation while in your car. Full duplex operation lets you simultaneously talk and listen, so both parties can interrupt each other for a normal sounding conversation.

The Hands-Free Kit automatically powers your phone and charges its battery (even when your car's engine is turned off). The Hands-Free Kit also includes a required external antenna that can improve your signal reception and boost performance.

Note: The use of wireless telephones and their accessories (devices) may be prohibited or restricted in certain areas. Always obey the laws and regulations on the use of these devices.

Accessory Limited Warranty Information

We recommend that you use Motorola original batteries and accessories. Under its limited cellular telephone warranty, Motorola specifically disclaims any responsibility for damage caused by the use of portable cellular telephone accessories not manufactured by Motorola.

For details on the complete line of Motorola cellular accessories, see your dealer or visit our Web site at `http://www.mot.com/`.

Troubleshooting

Question	Answer
I pressed the power button, but nothing happened. What's wrong with my phone?	Make sure that you press and hold the power button until the display appears and you hear an audible alert. If nothing still happens, then check that you have installed a battery and that the battery is charged. For more information about batteries and charging see the sections on batteries starting with "Installing and Removing Batteries" on page 17.
My battery didn't last as long as I expected. What can I do to extend battery life?	Your battery's "talk-time" and "standby-time" are relative measurements of the battery's capacity. The more you talk on the phone, the less standby-time you have, and vice versa. To get the most from your battery, allow it to charge fully. To charge the battery to 100% of its capacity, leave it in the charger for an extra hour after the charger's light turns green. You can also turn on the Power Save Mode feature to extend battery life. However, the LED Power/Status Indicator does not light when this feature is activated. Certain features demand power from your battery and reduce battery life. If you have selected the Automatic Display of Individual Call Timer feature, the display uses battery power to remain active during each call. Turn this feature off to conserve battery energy. (See "Displaying the Individual Timer Automatically" on page 64 for more information on this feature.) Make sure that you are using batteries that are compatible with your phone. Exposing your battery to extreme temperatures—below -10°C (14°F) or above 45°C (113°F)—can shorten battery life. Batteries are especially sensitive to high temperature extremes. As a good rule, always take your phone with you when you leave your car.
The display says, "Locked." How do I unlock my phone?	Enter the last three digits of your cellular number. If that doesn't work, use the factory preset lock code: 123. If all else fails, call your service provider (the company that sends you your monthly cellular bill) for assistance. (See "Locking/Unlocking Your Phone" on page 76 for more information on Security Features.)

Question	Answer
I tried to place a call and received a fast busy signal.	This sound means that the cellular system did not process your call. For example, the cellular system may be overloaded with call attempts. To redial the number, press SEND before ending your call attempt, or press END and try the call again later. (See "Redialing a Number" on page 29 for more information on redialing.)
I tried to place a call and received an alternating high/low tone.	This sound means your call did not reach the cellular system. You may have dialed the number too soon after turning the phone on. Wait until the "NS" light stops blinking before placing a call. An alternating tone may also indicate that your phone's signal is blocked. Make sure you're clear of any obstructions such as bridges, parking garages, or tall buildings.
I tried to listen to my Voice Mail (or use a paging service, a calling card, etc.) but nothing happened.	You have probably turned off the Scratchpad tones. Place your call, enter the access numbers when prompted by the recording, then press RCL SEND. To avoid this problem in the future, follow the directions "Turning Scratchpad Tones On and Off" on page 72 to turn the Scratchpad tones on.
My phone was stolen. What should I report and to whom?	Report a stolen phone to the police and to your service provider (the company that sends you your monthly cellular service bills).
I tried to place a calling card call using the internal Phone Book, but it didn't work.	You may have turned off your Scratchpad tones. Follow the directions in "Turning Scratchpad Tones On and Off" on page 72 to turn the Scratchpad tones on. Check that you stored your calling card information in the correct order, and make sure the groups of numbers are separated by pauses. The easiest way to correct the sequence may be to start from scratch. Follow the instructions on "Storing Calling Card Information" on page 53, enter your calling card information again, and store it in the same memory location as your previous attempt. Also keep in mind that when using your calling card, you must enter the number you are calling with the area code, but without the initial "1." Check with your long distance carrier for details on using your calling card.

Glossary

A

AC adapter An accessory device that allows you to power your phone and charge any attached batteries from a wall outlet.

AMPS (Advanced Mobile Phone System) A cellular technology that operates on 832 channels.

accessory connector port A socket on the bottom of the phone where you can attach accessories such as an AC adapter, battery charger, cigarette lighter adapter, or optional accessories.

air-time The amount of time you spend using a cellular system. Especially, the time between successfully placing a call and terminating a call.

antenna The device attached to your phone that sends and receives cellular signals.

Auto Answer When you activate this feature, your phone automatically answers after two rings. See “Activating Automatic Answer” on page 91.

Automatic Redial When your cellular network cannot handle your call, this feature enables your phone to automatically redial for the next four minutes. See “Redialing a Number” on page 29.

C

Caller Line ID A network/subscription dependent service that allows you to view information on incoming calls before answering. Not available in all areas.

cellular carrier One of multiple competing organizations in a given geographic area that owns and operates a cellular system.

cellular signal The radio waves that carry information between your cellular phone and the cellular system.

cellular system The cellular equipment in a given geographic area that relays signals to and from individual cellular telephones and the landline telephone system.

cigarette lighter adapter An accessory device that allows you to power your phone and charge any attached batteries from a car’s cigarette lighter.

D

DTMF tones See Dual Tone Multi-Frequency tones.

default A feature's original setting as pre-programmed in the factory.

Dual Tone Multi-Frequency tones The tones that your telephone transmits when you press a key on the keypad. These tones are used to access automated calling systems such as Voice Mail, paging services, banking-by-phone, etc. These tones are also heard by the party on the other line if you use the Scratchpad while a call is in progress. Synonymous with Scratchpad tones or touch tones.

E

emergency call This feature allows you to make an emergency call even if your phone is locked, by dialing 911 or another emergency access number.

F

fringe area The outermost range of a cellular system where signals are weak.

function keys The non-numeric keys on your phone's keypad used to perform specific tasks.

H

home system The local cellular system where you obtain your cellular service.

home type system A cellular system of the same type as your local cellular system. See also non-home type system, and system type.

I

icon One of the variety of symbols used to designate menu features and messages.

indicator A light on your phone that gives you information about your phone's status.

Internal Charger A charger built into your phone for use with an AC adapter or cigarette lighter adapter. See "Using the Internal Charger" on page 19.

K

Keypad Tones The sounds produced through your phone's speaker when you press the keys. See "Turning Keypad Tones On and Off" on page 71.

L

landline The telephone system used for conventional office and home phones.

Lithium Ion (LiIon) A battery technology used in personal cellular telephones. Lithium Ion batteries generally provide more energy capacity than Nickel Metal Hydride batteries of the same weight.

lock Use this feature to prevent unauthorized access to your telephone.

lock code A three-digit code used to access your phone once it has been locked. The factory programmed lock code is 123. To view or change your lock code, see "Locking/Unlocking Your Phone" on page 76.

M

memory location A space in the internal Phone Book where you can store a telephone number and a name.

menu feature Any feature that can be accessed through the menu system.

menu system The hierarchical arrangement of your phone's features that allows for quick, intuitive access.The top-level menu contains: Phone Book, Timers, Tone Control, Lock Secure, Phone Options, and Message Center.

Message Center Key Located on the bottom row of the keypad, the dedicated Message Center Key provides quick access to messages and messaging functions. See "Using the Message Center" on page 94.

N

name directory An alphabetical list of the names and telephone numbers you have stored into your phone's internal Phone Book.

Nickel Metal Hydride (NiMH) A battery technology used in personal cellular telephone batteries.

P

pause A special character that tells your phone to "pause" or wait for your input before sending a group of numbers stored in memory.

Pause Dialing A method of storing Phone Book entries that allows you to store multiple strings of numbers in one memory location; useful, for instance, in accessing automated phone systems. See “Storing and Placing Numbers with Pause Dialing” on page 51.

Personal Identification Number (PIN) A private numeric password that protects personal accounts such as bank-by-phone or Voice Mail.

prompt A message requesting input.

R

road map The visual representation of your phone’s menu system provided in this user guide.

S

scratchpad tones The tones that your telephone transmits when you press a key on the keypad. These tones are used to access automated calling systems such as Voice Mail, paging services, banking-by-phone, etc. These tones are also heard by the party on the other line if you use the Scratchpad while a call is in progress. Synonymous with Dual Tone Multi-Frequency tones.

scroll To move backward or forward through a list; for example: to move backward or forward through the menu system or the name directory.

security code A six-digit code used to access sensitive features in the Secure Options submenu of the Lock/Security menu.

service provider A company affiliated with a cellular carrier that provides satellite service to its customers.

signal The radio waves that carry information between your phone and the satellite system.

Smart Button The middle key on the side of your phone used to access the Phone Book’s name directory, send calls, end calls, enter the menu system, select features, and toggle features ON and OFF.

Speed Dial a feature that enables you to place a number by entering the two-digit location of your number and then pressing and holding the Smart Button.

standby-time The length of time a battery typically lasts if the phone is left ON but is not in use.

status indicator See indicator.

submenu A secondary level of your phone’s menu system hierarchy.

System Identification A five-digit number that identifies your home cellular system. An even number indicates a wireline system and an odd number indicates a non-wireline system. See also system type.

T

talk-time The amount of time that you spend talking on the phone.

toggle To switch between two possible options; for example: on versus off.

Turbo Dial™ keys a feature that enables you to dial numbers stored in memory locations by pressing and holding a single number key.

TDMA (Time Division Multiple Access) TDMA is an efficient method of providing digital cellular communication by allowing several different conversations on the same carrier frequency.

V

VibraCall™ alert Motorola's silent vibration mode that discreetly alerts you to incoming calls.

Voice Mail Contact your Service Provider for availability.

volume keys Located on the side of your phone, the upper and lower volume keys are used to adjust phone volume.

Index

A

access number for voice mail 102
accessories 104, 104–106
  batteries 104
  cigarette lighter adapter 104
  desktop charger 105
  hands-free kit 106
  headset 105
  holster 105
accessory connector port 11
antenna 11
audible timer
  one-minute 64
  repeating 65
automatic answer 91
automatic hands-free 89
auxiliary battery
  installing 17
  removing 18

B

battery
  accessories 104
  auxiliary
    installing 17
    removing 18
  charge times 21, 22
  charging 19
    desktop charger 20
    internal charger 19
    tips 21
    two batteries at once 21
  checking levels 18
  cover
    attachment 15
    removal 15
  desktop charging 20
  disposal 14
battery (continued)
  installing 17
  life 107
  low battery warning 18
  main
    installing 17
    removing 17
  overview 13
  power save mode 92
  removing 17
  slim auxiliary 10
  slim main 10
  standard main 10
  standby-time 13
  storage 14
  talk-time 13
  types 13
battery cover
  auxiliary
    attaching 16
    removing 16
  main
    attaching 15
    removing 15
battery level
  checking 18
  indicator 18, 25
  messages 19
Battery Level Indicator 25
busy signal 108
button
  Message 11
  Smart 11

C

call
  ending 28
  placing 27, 29
    calling card call 54
    restricting call placement 79
  receiving 28
    open to answer 90
    while phone is locked 77
Call Back number 99
call timer
  automatically display individual 64
  cumulative 63
  individual 62
  resettable 62
  resetting 63
call waiting 42
Caller ID 46
Caller Line ID 43
calling card
  PIN number 54
  placing calling card call 54
  storing information 53, 108
calls
  dialed 45
  managing recent 41
  received 44
changing your number 87
charge times, battery 21, 22
chargers
  desktop charger 105
  internal 19
charging batteries 19
cigarette lighter adapter 10, 104
clearing a memory entry 36
connector port 11
cumulative timer 63

D

desktop charger 10, 20, 105
dialed calls 45
digital
  indicator 23, 24
display
  System Identification 92

E

earpiece 11
ending a call 28

F

feature review 88
function keys 11

G

glossary 109–113

H

hands-free
  automatic 89
  kit 106
  operation 106
headset 10, 105
headset jack 11
holster 10, 26, 105
home system 87

I

In Use Indicator 24
In-Building Indicator 24
indicator
  Battery Level 25
  Digital 24
  In Use 24
  In-Building 24
  No Service 24
  Power/Status 25
  reading 24
  Short Message Service 98
  Signal Strength 24
  SMS message waiting 24
  Voice Message Waiting 25

J

jack, headset 11

K

key answer, multiple 90
key presses 12
keypad tones 71

L

language, select for display 93
lock code
  changing 78
  viewing 78
locking phone
  answering calls while phone is locked 77
  automatically 76
  manually 76
locking/unlocking phone 76

M

main battery
  installing 17
  removing 17
Master Clear 81
Master Reset 81
memory location
  editing 56
  service level 79
  using phone book 33
menus
  entering 29
  navigating 40
message
  clearing 101
  unlocking 100
  viewing a short message 98
message alert 97
Message Center button 11
messages, locking 100
microphone 11
Multiple Key Answer 90

N

No Service Indicator 24

O

open to answer 90
option
  clearing stored information 81
  reset 81

P

package contents 10
Pager Mode 85, 90
pager mode 69
pause dialing 52
pauses
  entering into a number 51
  placing a call with pauses 52
phone book
  clearing entry 36
  editing entries 56
  entering a name 34
  entering letters 34
  entry
    recalling by location 49
    recalling by name 49
    recalling with short cuts 37
  recalling entry
    by location 36
    by name 35
  storing entry 50
  storing names and numbers 33
  using 33
phone number, viewing your own 23, 86
phone overview 11
PIN number 54
placing a call 27, 29
power button 11, 107
power save mode 92
power sources, switching 22
power status messages 19
Power/Status Indicator 25

Priority Call 37
prompts, defined 12

R

recalling entry by location 36
recalling entry by name 35
received calls 44
receiving call
  automatic answer 91
  multiple key answer 90
  procedure 28
Recent Calls menu 42
redialing a number 29
retractable antenna 11
ringer
  selecting style 71
  suppressing 28
  vibrating 58, 69, 71
road map 40
  call timers 61
  lock security 74
  phone book 48
  recent calls 42
  tone controls 68

S

scratchpad tones 38, 72, 108
scrolling speed
  setting 103
Seamless Connection 22
security options
  resetting 81
  service level 79
Short Message Service
  clearing message 101
  indicator 24
  indicators 98
  locking message 100
  unlocking a message 100
  viewing messages 98
Short Messaging Services (SMS) 97
Signal Strength Indicator 24
single timer 65
Smart Button 29
smart button 11
SMS Message Waiting Indicator 24
Speed Dial 37
standby mode 26
standby-time 13
storing
  calling card information 53
  names and numbers 33
storing names and numbers 50
System Identification
  viewing 92

T

talk-time 13
timer
  audible one-minute 64
  audible repeating 65
  automatically display individual timer 64
  cumulative call timer 63
  individual call timer 62
  one-minute audible 64
  repeating audible timer 65
  reset 63
  resettable call timer 62
  single 65
tips, defined 12
tones
  alternating high/low 108
  call alert 69
  turning scratchpad tones on and off 72
Turbo Dial™ 33, 37
turning phone off 23
turning phone on 23

U

unanswered call indicator 28
unlock phone 107

V

VibraCall™ Alert 25, 31, 58, 69, 71
VibraCall™ alert 70
vibrating ringer 58, 69, 71
voice mail 70, 108
  dialing 96
  edit access number 102
Voice Message Waiting Indicator 25
voice privacy 75
Voicemail 25
volume
  adjusting 30
  muting 31
volume keys 12

Patent Information

Manufactured under one or more of the following U.S. patents:

4121218	4616314	4741034	D306594	5083304	D337332	D354062	D368696
4138681	4617520	4742562	4912602	D324024	5230007	5384825	5510693
4193036	D286778	D295627	4918732	D324388	5230093	D356084	5511235
4254382	4626309	4746242	4922178	5095503	5233633	5402447	D369162
4302845	4628529	D295973	4945570	D325028	5235492	5406146	5513078
4312074	4629829	D295975	4954796	D325583	5237257	5406562	D369359
4327319	4630304	4751737	4959851	5109536	5239127	D357224	5519303
4329666	4630305	D296187	4963812	D325915	5241545	D357457	5519346
4369516	4633141	4761621	4963843	5113436	5241548	5410741	5524276
4369522	4636593	4764737	4965537	5117450	5241650	D357680	5524278
4378603	4636741	D297734	4972355	5121047	5241693	D357681	D370463
4390963	D288432	D297735	4972432	5122480	5242767	5428836	5530922
D269873	4648125	4777564	4972455	5122722	D339582	D359734	5542116
4398265	4649543	Re.32768	4975808	D327061	5249302	D359735	5544250
4400584	D288683	D299136	4984290	5128834	5251331	D359959	D372481
4400585	4654655	4797929	D314173	D328302	D340710	5432017	5546275
D270835	D289156	4798975	D315330	5142551	5260988	D360632	5546380
D271491	4662691	4800348	D315346	5142696	5261119	5438684	D372896
Re.31470	4667333	4802236	D315543	5146620	5262710	D361070	5551078
4431977	4668917	4809356	D315559	5148471	5263052	5442680	5559471
4434461	4670747	4811377	D315565	5148473	5276707	5446763	D374424
4455534	4672502	4811404	5004992	5148961	5278994	5448763	D374872
4462098	4680787	4827226	D315907	5150359	D343173	5448771	5572193
D275951	4681476	4827507	5008925	5150384	5280637	5453997	5574976
4484153	4683585	4829274	D316417	5152006	D344087	D362840	5577268
4485486	4692726	4837534	D316859	5157693	5287553	5457744	D375732
4486624	4704588	D301476	5017856	5163159	5287555	5459640	D375733
D276809	D292578	4843621	5018188	5164652	5287556	5463646	D375734
4491972	4706036	4845772	5020091	5166596	D344511	5465412	D375932
D277667	D292920	D302015	5020092	5175759	5301365	5469177	D375952
4504834	4710724	4851966	5020093	5175874	5321847	5475752	D376127
D278708	4711361	4868576	5028083	D332261	D348880	D365094	5588041
4523155	4715063	4870686	5028859	5182749	5349588	D365817	5589796
4546329	4716319	D303656	5029044	D332785	5359696	5486843	5590177
4550426	4716391	4876552	5029233	5185566	5361400	5487184	5594778
4551696	4723305	4879533	5031028	5187809	5363071	5488335	5594951
4564821	D294257	D305427	5036532	5193223	5365549	5488649	D377792
D282169	4727306	4896124	5053924	5195106	D352497	D366872	D377934
4571595	4727583	4897873	5057762	5195108	5366826	5493198	5604050
4573017	4730195	D305717	D320780	5201069	D353131	5493714	5606730
4574243	4734635	4904549	5059885	5204977	D353361	5497126	D378366
4585957	4736277	4905288	5060294	5210793	5375143	5497382	5613229
4602218	4737976	4905301	D322783	5214675	5375258	D367640	5613863
D284759	4740794	D306293	D322955	5222104	5379324	5499394	5615233
D285439	4741018	D306441	5081674	5222251	D354055	5506490	5621763

PAT111398

Other patents pending.